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May 1985

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GHOSTBUSTER
David Crane

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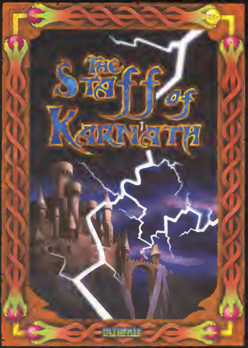

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ABC

Submitting articles

Commodore Horizons welcomes readers' contributions — either articles or program listings Articles should be typed double-spaced with a wide margin Programs should, whenever possible, be printed out on plain white paper, accompanied by a cassette We cannot guarantee to return every article or program submitted, so please keep a copy If you want to have your program returned you must include an s.a.e

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Editorial

IS COMMODORE stretching its resources too far? Certainly the company has the world's best manufacturing set up for home computers In terms of sales, software support and availability of peripherals, there's no micro which can challenge the position of the Commodore 64

Commodore, though, seems to have lost faith in the small computer market, perhaps because of the relative failure of the C16 and Plus/4 The company's future plans revolve around machines designed to compete with Apple's Macintosh and IBM's PC, both of which are regarded in the American market as machines for use at home as well as in the office.

The C128, and the 128D version which has a built-in disk drive and detachable keyboard, are clearly aimed at the Macintosh market In this area, although there is a certain amount of games software, the emphasis is on productivity and creative software — spreadsheets, databases, art packages, planners, and so on The Hyperion, Commodore's IBM-PC compatible machine, will have to compete with similar machines from Zenith, Olivetti, Compaq and many others Only if the cost is amazingly competitive will Commodore be able to conquer this market The third option, the Amiga Lorraine machine, is still very much an unknown quantity. Obviously Commodore would not have bought Amiga if the product had nothing new to offer — but where will the company find a new market?

The fact remains that Commodore is determined to succeed in the business market. The 8000 series has achieved large sales without having a high publicity profile, and theoretically there's no reason why the new machines can't be equally successful, given that Commodore clearly intends to push them hard.

If the small computer market is to continue to be important, Commodore's forces will be divided between two sometimes conflicting interests. Perhaps no other computer company could carry it off, witness the failure of Sinclair and Acorn to compete in both the home and business markets Commodore, however, should stand a much better chance of success

C16 BOOK BARGAINS

THIS IS THE chance for all C16 owners to get Melbourne House books at an exclusive bargain price

Commodore Horizons readers will be able to buy any of the three C16 books, normally retailing at £6 95 each, for only £5 00 each The three titles available are

How to create your own C16 programs — using Basic skills to get the best from your machine

C16 Machine language for the absolute beginner — complete instruction in 7501 machine language, helping you to write better faster programs

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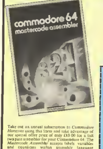

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the last day of June

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AND A 1 YEAR SUBSCRIPTION TO COMMOOORE HORIZONS

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The winning entrant will receive the fabulous 1701 Monitor, kindly donated by Commodore U K. The monitor gives a sharp picture and clear sound, and is compatible with all Commodore micros – as is Commodore Horizons. The winners will be those readers who make the bast suggestions for new features – and their ideas will be used in the magazine.

NAME ____________________

ADDRESS ____________________

____

____

AGE ____________________

OCCUPATION ____________________

MICROS OWNED (tick)
CBM 64 ☐
VIC 20 ☐
C16 ☐
Plus/4 ☐

Others (please specify) ____________________

How often do you buy Commodore Horizons?

Always ☐ Sometimes ☐ Rarely ☐

Do you subscribe to Commodore Horizons?

Yes ☐ No ☐

Which other computer magazines do you buy?

- Commodore User ☐
- Commodore Computing International ☐
- Your 64 ☐
- Your Commodore ☐
- Zzap 64 ☐
- Popular Computing Weekly ☐
- Personal Computer News ☐
- Home Computing Weekly ☐
- Others (please specify) ____________________

How much money have you spent in the last three months on

Software ☐ Hardware ☐

What peripherals do you own? (tick)

Printer	☐	Disk drive	☐
Joystick	☐	Modem	☐
Speech synth	☐	Music keyboard	☐
Graphics tablet	☐	Cassette unit	☐
Printer/plotter	☐	Monitor	☐
MIDI interface	☐	Other (please specify)	

____

What do you use your micro for? (tick)

Games	☐	Word processing	☐
Record keeping	☐	Spreadsheets	☐
Graphics	☐	Music	☐

Other (please specify) ____________________

Are you VERY interested, FAIRLY interested or NOT interested in the following

	VERY	FAIRLY	NOT
Arcade games	☐	☐	☐
Adventure games	☐	☐	☐
Wordprocessing	☐	☐	☐
Spreadsheets	☐	☐	☐
Databases	☐	☐	☐
Computer graphics	☐	☐	☐
Computer music	☐	☐	☐
Basic programming	☐	☐	☐
Machine code programming	☐	☐	☐
New hardware	☐	☐	☐
Micro communications	☐	☐	☐

Do you subscribe to (tick)

Micronet ☐ Compunet ☐

Do you type in listings from Commodore Horizons?

Often ☐ Sometimes ☐ Never ☐

What do you think of these features in Commodore Horizons

	LIKE	DON'T KNOW	DISLIKE
News	☐	☐	☐
Letters	☐	☐	☐
Cartoons	☐	☐	☐
Games reviews	☐	☐	☐
Hardware reviews	☐	☐	☐
Utilities software reviews	☐	☐	☐
Profile interviews	☐	☐	☐
Programming articles	☐	☐	☐
Tower of Adventure	☐	☐	☐
Imprint book reviews	☐	☐	☐
Competitions	☐	☐	☐

Have you ever entered any competitions in Commodore Horizons? Yes ☐ No ☐
Was the prize offered hardware ☐ or software ☐ ?

Do you plan to change your micro in the next year?

If so, what to? ____________________

____

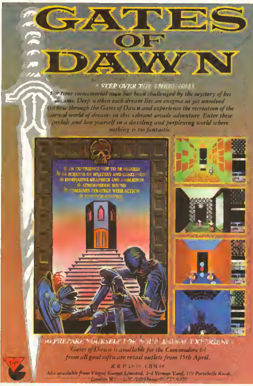
How many computer books did you buy in the last three months? ☐

WHAT SORT OF FEATURE WOULD YOU MOST LIKE TO SEE IN COMMODORE HORIZONS?

____

____

____



GATES OF DAWN
AN EXPERIENCE NOT TO BE MISSED
64 SCREENS OF MYSTERY AND CHALLENGE
INNOVATIVE GRAPHICS AND ANIMATION
ATMOSPHERIC SOUND
COMBINES STRATEGY WITH ACTION
JOYSTICK CONTROL

A STEP OVER THE THRESHOLD

For time immemorial man has been challenged by the mystery of his dreams. Deep within each dream lies an enigma as yet unsolved. Go now through the Gates of Dawn and experience the recreation of the surreal world of dreams in this vibrant arcade adventure. Enter these portals and lose yourself in a dazzling and perplexing world where nothing is too fantastic.

SO PREPARE YOURSELF FOR [illegible] EXPERIENCE

Gates of Dawn is available for the Commodore 64
from all good software retail outlets from 15th April.

R R P £8.95 CBM 64

Also available from Virgin Games Limited, 2-4 Vernon Yard, 119 Portobello Road,
London W11 [illegible] Telephone 01 727 8070

Mail Merge

Send your letters on software, hardware computing or life in general to Mail Merge Commodore Horizons 12/13 Little Newport St, London WC2H 7PP. Star letter wins £10.

Goodies galore

LIKE MANY of your readers I keep my issues of Commodore Horizons for many years, as they are most useful for referring back. It is most annoying when you know you have read something in one of them, but have to spend hours foraging through the index of each until you find what you are looking for. Would it not be possible to publish a cumulative index annually, say issued in January, each year for the previous year? I'm sure many of your readers would appreciate this.

J Whitehead
Tadworth
Surrey

It's a very good idea, and one which we're working on. In response to many requests from readers, we're also looking into the possibilities of making available binders for the magazine, so watch out for details in future issues.

COBOL, cobbers

WITH RESPECT to a recent letter to your Answer Back column, in which V F Brennan wrote of his need for a version of COBOL. The necessary CP/M cartridge is available over here, as is the Commodore approved Nevada COBOL.

It seems the biggest drawback of the C64 is that it is too popular, and only a fraction of the third party computerware produced is available in any one country. A great shame, wouldn't you agree?

Paul Marston
General Manager
SHOP 64
PO Box 515
Willetton 6155
Western Australia

Random actions

IN YOUR February issue one of your letters dealt with creating random numbers between 0 and 255 in machine code. Here is a useful trick which I think will be a great help to all machine code programmers.

```
LDA = $FF
STA$DF0F
LDA = $80
STA$D412
```

Once this code has been executed, use LDA$D41B to create a random number between 0 and 255 in the accumulator. This can also be used in Basic with POKE 54287,255 POKE 54290,128. Once this code has been executed, PEEK(54299) to get a random number. This is totally useless in Basic, as INT(RND(1)*255) will do exactly the same thing, but the first method could be used in a program to confuse a reader!

Jean Yves Sireau
L'Etang La Ville
France

Tricky tips

TWO POINTS concerning letters in Answer Back. Firstly, on sprite offset flags I think Simon Mills was referring to the most significant bit register at 53264. Each sprite can have a value between 0 to 511, but only values between 24 and 343 are visible on the screen. If the X position of the sprite is greater than 255 the bit in the X most significant bit register must be set to 1 (turned on). If the X position of a sprite is less than 256 then the X M S B. must be 0. Bits 0 to 7 of the X M S B register correspond to sprites 0 to 7.

This simple program demonstrates the use of the X M S B. by repeatedly moving a sprite across the screen.

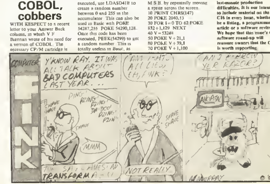
```
10 PRINT CHR$(147)
20 POKE 2040,13
30 FOR I=0 TO 62 POKE
832+I,129  NEXT
40 V=53248
50 POKE V+21,1
80 POKE V+39,1
70 POKE V+1,100
80 FOR J+0 TO 256
90 IF J>255 THEN
J=0 POKE V+16,1
100 POKE V,J
110 IF J>254 AND
PEEK(V+16)=1 THEN
J=0 POKE V+16,0
120 NEXT
```

Secondly, concerning the letter about displaying a picture while loading a program. The screen is blanked by the computer as part of the tape handling routines. The exact location, for those with disassemblers, is BLANK from 63629 TO 63636 and RESTORE from 64661 to 64668. It sets to 0 bit 4 of location 53265 to blank the screen, and sets it to 1 again to restore the screen. So if anyone knows how to beat the system, I'd like to know.

P Dent
Durham

Whoops!

OUR APOLOGIES for failing to include the C16 listing promised on the cover of the April issue. This listing had to be withdrawn due to last-minute production difficulties. It is our intention to include material on the C16 in every issue, whether it be a listing, a programming article or a software review. We hope that this issue's C16 software round-up will reassure owners that the C16 is worth supporting.


COMPUTER
FINK
Y'KNOW RAY. IT WAS ALL TALK ABOUT BAD COMPUTERS LAST YEAR...
PING' PZING' DZING' DA DOO' DZING' PZIN''
SHAVE SHAVE
SHAVE
MMM
THE SH... ...AVES! AN TRANSFORMA...
AND THAT ALL LIES EH, FINK?
SHAVE SHAVE
NOT REALLY
AN' I BORROW YER RAZOR?
M MURRAY
© '85

Menzies rewards intelligence

SCHOOLS in Falkirk, Sutton and Nottingham have won first prizes in the John Menzies Young Programmers of 1944 contest

Three teams in the under 12, 12 to 15 and over 15 categories were presented with their prizes at a ceremony in Edinburgh Each winning team was awarded £1000 worth of computer equipment and a selection of individual prizes

The judging panel included author Tim Hartnell and artificial intelligence expert Dr Donald Michie

Entrants were asked to write a computer program which would find the missing number in a sequence, and show its 'thought processes'' as it worked

2 cheers for Maggie

COMMODORE has presented two very special 64's to the Prime Minister The machines were the one millionth and two millionth to be manufactured at the Corby site, and were given to Mrs Thatcher in recognition of the financial support given by the government in the setting up of the Corby plant Present at the ceremony were Commodore's acting general manager, Arthur Scott, and the MP for Corby, William Powell

One size fits all

GAIL WELLINGTON, head of Commodore's European software acquisition team, has announced plans to produce software on a single disk which will work on all four current Commodore micros, the 64, C16, Plus/4 and C128

The different versions of the program will have loading routine headers which will enable the micro to load the correct version from the disk The software retailer will therefore only have to stock one type of disk to cover all the Commodore machines, cutting down on overheads and saving shelf space The forthcoming C128 is already attracting software support Audiogenic's Micro Swift Spreadsheet (reviewed this issue) has been converted for the C126, and should be available as soon as the machines are in the shops

The C128 version has a worksheet size of 64 columns by 999 rows, and takes advantage of the 128's larger memory and built in 80-column display The pop-up menu system and range of functions and formats remains the same as the 64 version Other software in preparation for the C128 includes Thorn EMI's Perfect series and Precision's Superscript — a follow-up to Easyscript — and Superbase

C128D on the way

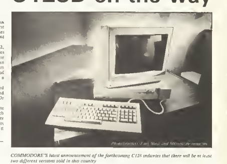


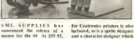
Photo courtesy [illegible]

COMMODORE'S latest announcement of the forthcoming C128 indicates that there will be at least two different versions sold in this country

The basic C128 previewed at the Las Vegas Consumer Electronics Show in January, is a successor to the Commodore 64, with three modes of operation, C64 compatible, 128K with extended Basic and CP/M mode The C128D will have the same operating parameters, but will have built in disk drive and detachable keyboard The processor unit is designed to house a monitor on top

It is thought that the C128 will be manufactured in Corby, and the 128D in Hanover Launch dates are still unclear, with Commodore sources quoting various dates in the later half of this year With the current unpredictable level of the US dollar, it is also impossible to give any accurate estimate of price at present

Mouse in the house



SMC SUPPLIES has announced the release of a mouse for the 64 At £59 95, it is obviously not intended for games applications, but should come into its own in fields such as computer-aided design and graphic art.

The software packaged with the mouse gives the user the facilities of sixteen screen colours, various brush sizes and shapes rubber banding, geometric shapes, fill, and variable text size. Screen dump for Centronics printers is also included, as is a sprite designer and a character designer which can generate data to be used in the owners own programs

Most paddle controlled 64 software can be used with the Mouse, which will be available through High Street and independent retailers For more details contact SMC, 11 Western Parade, Gt North Road, Barnet, Herts, 01-441 1282

Talk to the stars

MICRONET's latest service, the Celebrity Chatline, has now been launched. The first viewdata program to be broadcast live on a regular weekly basis, the Chatline will allow Micronet users to interrogate luminaries in the world of computing every Wednesday evening from 7.00 to 8.00.

Micronet's Editor, David Babsky, will travel to the celebrities' homes, and input their responses as users send in questions on special message frames.

A list of the subjects, which includes Michael Feldman of Channel 4's program 4 Computer Buffs, Lords of Midnight author Mike Singleton, and Guild of Software Houses representative Paul Duffy, will be published on Micronet.

For more information contact Claire Walker, Micronet, 8 Herbal Hill, London EC1, 01- 278 3143.

...and shop on the phone

ELECTRONIC shopping service Compucard has linked with Compunet to provide a new service called Comp-U-Store OnLine.

The new service allows Compunet users to gain direct access to Comp U-Card's database in Windsor. This stores details of product features, models and prices on items ranging from electrical goods to musical instruments and gardening equipment.

Immediate purchases can be made on any of the goods, or the service can be used to compare product information. Price reductions are guaranteed on all products, since retail overheads are avoided.

The service costs £20 per year in addition to the Compunet subscription, and is paid for through Compunet's direct debit system.

For details contact Compunet at Metford House, 15-18 Clipstone St, London W1, 01 637 0942.

Just a quick byte

COMMODORE 64

BOB GELDOF's Ethiopian Famine Appeal is now being supported by the sale of the Soft Aid games cassette. The Commodore 64 version costs £4.99, and all profits go to the famine appeal.

The tape, co-ordinated by Rod Cousens of Quicksilva, includes the music Feed the World, and games from A&F, Activision, Bug-Byte, Elite Interceptor, Ocean, Quicksilva, Tasket, US Gold and Virgin.

After some initial problems with WH Smith's, who were reluctant to stock the tape due to its cover artwork and the lack of any declaration on the outer package that the proceeds were going to the Appeal, the problem has been solved by the addition of a flash sticker.

Gargoyle's myths and legends

GARGOYLE GAMES' revolutionary Tir Na Nog is now available on the 64. Retailing at £9.95, Tir Na Nog retains the high resolution animation which caused such an impact when the Sinclair Spectrum version was released last year. Programmer Roy Carter was nominated as Leisure Programmer of the Year at the Computer Trade Association awards, and Tir Na Nog was nominated as Game of the Year.

The game, a complex arcade adventure, follows the adventures of Gaelic hero Cuchulainn as he battles with figures from myth and legend to regain the four parts of a mystic seal.

Contact Gargoyle on Dudley 238777

Monitoring the situation

PHILLIPS has introduced a new range of computer monitors with prices starting at around £80.

The 7502 has a green monochrome display, anti glare dark glass and an adjustable stand, and will cost around £80.

The 7522 has an amber display, and will cost around £85.

The 7513 costs around £115, and is designed for the IBM PC. Top of the range is the full colour CT 2007, at around £239, which incorporates a TV receiver. The units feature a choice of RGB, RF or CVBS input, and the colour unit uses a special "shadow mask" to give an exceptionally sharp image.

For details contact Philips Electronics, City House, 420-430 London Road, Croydon, 01-689 2166

The best of both worlds

***John Cochrane** finds to his relief that Whitby's Commodore 64 Spectrum Simulator software doesn't make the keyboard go all squishy*

HELLO, my name's John. I have a Comtrum computer, errr, a Specodore computer, err, a Comspec, errr, a Cospectradore, a Sinco-64, errr,, forget it. Life used to be simple, I had a Commodore 64 and a Sinclair Spectrum. I plugged one of them into the TV and was happy for hours. That's all changed now. Someone at Whitby Computers thought it would be a good idea to play a little trick on John. Send him this new program, they said. Then when he's playing around on his C 64 he will be able to imagine that he's actually using a Spectrum, they said. I found all this a little confusing at first, but I think I'm getting the hang of it now.

What's a Sinclair Spectrum doing in Commodore Horizons? Read on

The Spectrum Simulator is a pretty amazing piece of software. Load the thing in from tape (a little under 2 minutes to load) and your Commodore 64 starts to behave just as if it were a Sinclair Spectrum. The program uses the full 64k RAM provided by the C-64 to replace the existing Kernal and Basic ROM routines with Spectrum-type routines and to provide around 29k of Basic RAM. Thus from Basic the machine performs very much like a Spectrum although the hardware is all C-64. I told you that this was confusing.

Transportability

It's possible to write a program on a Spectrum, save it to tape, and then to load the program from the same tape but using a Commodore 64 plus C2N cassette deck and run the program on the C-64. Or you can do all that the other way around if you feel inclined. This program transportability is limited to Basic programs only though, machine-code programs will not run on the Spectrum Simulator. Now the squabbles over the relative merits of these two machines look just a little silly. The C-64 can give the best of both.

I can't think of any single important reason for saving that everyone should rush out and buy the Spectrum Simulator, just lots of little ones. Spectrum Basic is quite reasonable and gives you very direct command of simple sounds and high-resolution graphics. Most program listings printed in the popular magazines are for either the C 64 or the Spectrum, with the Spectrum Simulator you can benefit from those for both. If you have a friend with a Spectrum then this could give you a means of sharing programs and data. If you just want the intellectual challenge of learning how to use a different machine but are not on speaking terms with your bank manager just at the moment then this could be a worthwhile buy.

But let's put the Simulator through it's paces. Just how well is Spectrum Basic simulated? In terms of the number of commands and functions provided it does very well. The only commands not fully implemented (as far as I can tell) are CLOSE and OPEN (used for RS-232 and other file transfer), IN and OUT (controls hardware input/output at microprocessor level), MOVE (Microdrive file-handling), and BRIGHT (this is one place where C-64 hardware cannot deliver the goods in boosting the display brightness). These commands are not greatly missed however, as there are over 80 other commands and functions available, nearly all of which are used more often than the missing ones.

One of the worst features of Spectrum Basic is the one key entry system for keywords. This is preserved on the Simulator and is just as difficult to use. A HELP feature is provided though, in the form of a look-up table on F7 to remind you which keys do what. The documentation provided with the software is very minimal and, as Whitby advise, unless you are already very familiar with Spectrum Basic you will need to get a good book to help you with the language.

Of particular interest to C-64 owners are the various plotting and drawing commands. The Spectrum screen format is 256 pixels across by 176 pixels down compared to the C-64 high-resolution capability of 320 by 200 pixels. The big improvement offered by Spectrum Basic is the ease with which the display can be controlled. Unfortunately the only bug that I came across in testing the Spectrum Simulator was in the DRAW command, which caused an occasional but complete crash.

Some things work better with the C-64 hardware than they do with the original Sinclair kit. The best example is the way that the Simulator lets you use the 1541 disc-drive as if it were a Sinclair Microdrive, but with the improved speed and reliability of the disc system. Whitby says that the MPS 801 printer and a number of popular interfaces can be used to list programs, etc., although I haven't got this to work yet.

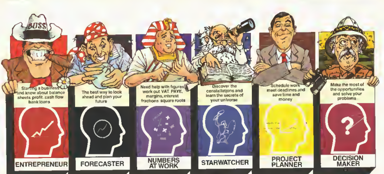
Lastly the speed. I have prepared a short table comparing the relative times to perform simple operations of a real Sinclair Spectrum, a Simulated Spectrum, and a standard C-64. All times are compared to the real Spectrum, thus an indicated time of 0.5 means that the operation was performed twice as quickly as the Sinclair. These timings are obviously rather crude but interesting none the less.

COMPARATIVE TIMINGS TABLE

OPERATION	Real SPECTRUM	Simulated SPECTRUM	C-64
FOR NEXT loop	1	1.7	0.4
PRINT	1	1.7	1
SIN()	1	1.9	0.6
LOAD (tape)	1	1	2.0
LOAD (M/drive disc)	1	0.3	0.3
DRAW	1	5.2	—

So what can I say? I think that the Spectrum Simulator is one of those programs that is designed for compulsive fiddlers. If you like testing out all the potentialities of your computer, if you like looking at different ways of doing things, then you will probably like the Spectrum Simulator. ■

Software. *Spectrum Simulator*
Micro. *Commodore C64*
Price: *£14.95*
Supplier: *Whitby Computers Ltd,*
7 Chubb Hill Road, Whitby,
N. Yorks 0947 604966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If you intend to go into business Entrepreneur is an essential investment. Practical Computing

PROJECT PLANNER

The manual has [illegible] Mike Grace Commodore Horizon

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The best star-gazing program so far available on microcomputer. John Walker [illegible]

FORECASTER

I found the theories of Prediction fascinating. [illegible] Commodore Horizons.

DECISION MAKER

In many ways it has succeeded where [illegible] other programs have even attempted [illegible] using the computer to educate adults. Popular Computing Weekly

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SOFT★HITS

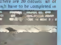
Seaborne slalom

Aqua Racer is a wet version of Pole Position, and I don't mean that it's weak in any way, if anything its rather harder faster and possibly even more exciting than PP

Although there's some horrendous off-key music introducing the game, everything goes well from then on. A little man lights a cannon, and you're off, steering your speedboat — shown at the bottom centre of the screen — along a twisting track of buoys As with a racing car, you change gears to attain maximum acceleration where necessary

There are dozens of opponents which will mercilessly bump you into the buoys if you're not careful, and pointers which warn you when a curve is coming up

There are 20 circuits all of which have to be completed in



a certain time and a full choice of demo modes, player options, and so on

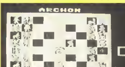
It's well worth playing through a practice lap (without any opposition) before trying the real thing, since it's very difficult to get the hang of But once mastered, Aqua Racer is an exhilarating experience Watch out for the rocks

Program: Aqua Racer, 64
Supplier Bubble Bus
Price £7 95
Graphics ★★★★★
Sonics ★★★★★
Gameplay· ★★★★★★★★

Board of the Rings

Most computer versions of board games leave me just that — bored Archon is different, because while retaining the strategic element necessary to appeal to thoughtful games players, it also has a pleasing element of ultraviolence

Based on chess, Archon can be played by one player against the computer or by two players with joysticks The chess like board includes five "power points", which you must occupy to win the game The players — knights, archers, trolls goblins and so on —



fight for Light and Dark, and as the game progresses coloured squares indicate which side is in the ascendent

When two players occupy one square movements being regulated by chess like rules, the action switches to the combat arena, and the two pieces must fight it out with energy bolts, swords and cudgels Therefore there's no guarantee that moving onto a square will win you the place It adds a new and exciting dimension to board games There are also magical spells which some characters can use to get out of tricky situations

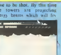
So far I've invariably been defeated by the Forces of Darkness, but Archon is compulsive enough to make we want to keep at it High marks for originality

Program· Archon, 64
Supplier. Ariolasoft
Price. £11 95 tape, £14 95 disk
Graphics: ★★★★★★
Sonics ★★★★
Gameplay. ★★★★★★★★

Space hoppers

I get the feeling that it's a bit late in the game to try to sell programs which consist of nothing but zapping Even when they're conversions of popular arcade games, I doubt that the element of familiarity will be enough to endear such games to the audience However, if you're determined to do it, do it properly US Gold's version of Buck Rogers is very faithful to the original

Your spacefighter represented by a large, colourful sprite, zooms across a perspective landscape blasting everything that moves In the first phase there's nothing much to do except to get through the towers on each side of the screen without crashing, but later on things hot up first hostile saucers, then ground based hoppers have to be shot. By this time the towers are projecting energy beams which will fry



you if you pass on either side

In the next stage you zoom into space and have to fight off wave after wave of aliens, including a mothership which drops fast moving fighters If you manage that, it's on to the next planet and the next wave of nasties

OK if you demand nothing more than a mega-zap from your software

Program. Buck Rogers, 64
Supplier. US Gold
Price £9 99
Graphics· ★★★★★★
Sonics· ★★★★★
Gameplay ★★★★★

First gear

This is the original and genuine, and goodness knows why we've waited so long for a review copy Pole Position is certainly one of the most exciting and enjoyable games available for the 64, or any other machine for that matter

The screen represents a cockpit view from a Formula 1 racer, with the track winding into the distance and a nicely-detailed background You control direction, speed and

gear selection with the joystick, and must first complete a practice lap (without opposition) to qualify for the main race You can select the number of laps you want to complete

Bear in mind that if you tootle around the course at 150 you won't complete it in time to qualify for the main race Remember too that slamming into the back of another racer at 250, or slewing off the track on a tight curve, is not good for your health Good explosion

The sound effects add a huge amount to the atmosphere and you'll soon get the hang of changing gear, overtaking, cutting corners hugging the inside lane, and selecting your position to make the most of the layout of the three tracks Awesome — get it

Program Pole Position, 64
Supplier US Gold
Price £9 99
Graphics. ★★★★★★★
Sonics. ★★★★★★★
Gameplay ★★★★★★★★★

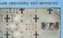
SOFT★HITS

Winter kills

This game is very unusual, and worthy of note if only because it escapes totally from the boring old ladders'n'platforms, space shoot 'em-up or arcade adventure formats

The game is played on two screens — you press the space bar to jump from one to another The first is a complex maze of interlocking hexagonal rooms Each is marked with a symbol lake rooms cannot be crossed sword rooms contain various magical objects fire rooms allow you to replenish your firestick, and ice rooms may be crossed with difficulty You control an adventurer (seen from above) who must make his way through the maze Each room can be rotated by pulling back on the joystick, allowing you to escape through previously inaccessible exits.

The Ice Queen sends various nasties to do you in including birds, bats and flying swords Your firestick will fend off most of these The other screen gives the status of your firestick, your level of goodness (novel concept, that), time remaining and inventory



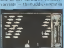
Various objects to be found in the Ice Palace will enable you to find pieces of the Crown which is your goal If you successfully find a piece of the crown, a spinning cylinder appears, and you can move on to the next level

I haven't yet been able to get very far with the game, because I've been spending too much time just watching the excellently-designed graphics This one looks well worth sticking at, though

Program: Ice Palace, 64
Supplier Creative Sparks
Price £7 95
Graphics ★★★★★★★
Sonics. ★★★★★
Gameplay ★★★★★★

Master blaster

Gremlin's contribution to the growing number of C16 games doesn't have much of the originality and graphic sophistication we've come to expect from the company It's a very straightforward zapper, based on the arcade favourite Astro Blaster This was always one of my favourite Invaders variants — the baddies come in



waves, either downwards sideways, or diagonally, and to add to the threat of alien bombs you have a fuel limit and an overheating laser to cope with Xargon Wars keeps most of these elements and offers keyboard or joystick control The graphics are nothing extraordinary either in design or concept, and some of the aliens seem remarkably slow (though your ship can move pretty quickly from side to side) so the early stages aren't much of a challenge

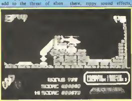
All the usual elements are there, zippy sound effects, high score table bonuses for completing screens and so on It will keep a lot of C16 owners happy while they're waiting for something more spectacular to come along

Program Xargon Wars, C16 Plus/4
Supplier Gremlin Graphics
Price £6 95
Graphics ★★★★★
Sonics ★★★★★
Gameplay ★★★★★

Copper in a chopper

Games based on TV series are usually disasters, but a great deal of effort has gone into this version of the short-lived Airwolf

Airwolf is a sophisticated and powerful combat helicopter and you must control it on a dangerous mission into an underground terrorist base The plot is very much like Fort Apocalypse from US Gold, but the graphics are immensely superior The chopper itself is a lovely design, and the perils of the underground caverns are many and various, bouncing balls, flying saucers, energy screens, and so on.



You can't afford to rest for a second, since if you release the joystick, gravity asserts itself and you'll crash

Hidden somewhere in the caverns are a number of scientists captured by the sinister General Zaranov, and you must blast your way through to rescue them, then destroy the General's headquarters

Although the game is little more than a straightforward zapper, there's a degree of thought involved in getting past the various defences, and the whole thing is done with unusual style and slickness

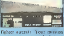
Excellent theme music completes what is a superior arcade offering

Program Airwolf, 64
Supplier. Elite
Price £7 95
Graphics ★★★★★★★★
Sonics ★★★★★★★
Gameplay ★★★★★★★

High flyer

It's a good sign that software this good for the C16 is now starting to turn up A C E is an air combat emulator which is about as good as anything you can expect to see considering the limited memory of the C16

Like Digital Integration's Fighter Pilot for the 64, ACE gives you the view from the cockpit of a high performance



fighter aircraft Your mission is to intercept and destroy enemy planes

Your radar display gives you the bearing and rough altitude of the enemy aircraft Your armament consists of normal and heat-seeking missiles, but you must remember that enemies will always retaliate when you attack them, so it's best to make the first shots count

Fuel, velocity, altitude, pitch, roll and damage indicators help you to monitor your situation and you can use keyboard or joystick

As a bonus there's a stirring musical intro, and the whole thing is remarkably polished and exciting

Program A C E , 64
Supplier Cascade
Price £9 99
Graphics: ★★★★★★
Sonics ★★★★★★
Gameplay ★★★★★★★★

IJK SOFTWARE & THE COMMODORE 64:
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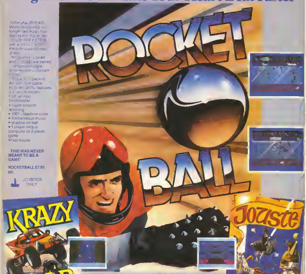

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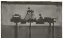
SOFT★HITS

Oil be seeing you

This is one of several worthy offerings from Tynesoft, who are doing more than anyone to support the C16. Although the game is very simple, it features excellent use of graphic design and has good basic concept.

You control, using keyboard or joystick, a helicopter which patrols an area containing several oil wells. The border around the screen shows the state of your fuel supply — when it flashes red you must get to a rig and land on a helipad or plunge into the sea.



Your enemies are the submarines which threaten the safety of the oilrigs. They glide beneath the waves firing deadly missiles, and you must stop them by flying low enough to bomb them, while avoiding being destroyed yourself. When the enemy subs are on-screen you can't refuel, and you can't drop bombs while you're descending or you might blow yourself up. All in all it's pretty tricky nailing the enemy subs.

The graphics of the oil rigs are excellently designed — not 3D, not particularly highly detailed, simply well thought out. In fact it's doubtful whether you could achieve anything so good on the 64.

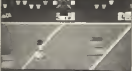
In all this program should satisfy most C16 owners, and Tynesoft promises better things to come.

Program Rig Attack, C16
Supplier Tynesoft
Price £6.95
Graphics ★★★★★★★
Sonics ★★★★
Gameplay ★★★★★★

Hou-ston! Hou-ston!

An astonishing debut to the 64 software market, Rocket Ball from IJK is without doubt one of the most exciting, enjoyable and original games yet for the machine. I may be biased, since I've always been a great admirer of Rollerball, the James Caan film on which the game is loosely based.

Rocket Ball keeps most of the rules, two five-man teams skate anti-clockwise around a circular track, fighting for possession of a steel ball. Joystick control allows you to control the speed, track position, punching, ducking, throwing and passing of your men. As in Commodore's International Soccer, the man nearest to the ball changes colour to indicate he's under your control. The screen scrolls around to show the section where the ball is, and numbers on the track help you to work out where the goal is.



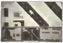
It's a tricky move skating up to the goal avoiding opposing skaters, ducking to catch the ball, slowing down and slamming the ball onto the magnetic plate.

There's a full range of team selections, two player option, great music and an awards ceremony. Two minor objections — no motorbikes and no "swooshing" sound effects as you skate along. Otherwise, this one is immaculate, with graphics to match any arcade game yet, and the fastest, most exciting play ever.

Program Rocket Ball, 64
Supplier IJK Software
Price £7.95
Graphics ★★★★★★★★
Sonics ★★★★★★
Gameplay ★★★★★★★★-★★

On the run

Give My Regards is that rare thing, a totally naff concept which turns out good in practice. Based on the disasterously awful film, the game retains the same basic plot — recover the stolen master tapes of Paul McCartney's latest album before midnight, or lose your shirt. There are two types of screen, a scrolling map of central London, marked with the major underground stations, and a "meeting" screen where you must try to encounter the seven characters and collect the musical notes which make up the last missing tune.



The music is nice though repetitive (how many times you could sit through Band on the Run?), and the intention of the game is to require more thought and strategy than skill with a joystick. In that it's an admirable effort. After playing for half an hour I realised that there's a lot more depth to it than is obvious at first sight. The character sketches are only rough guides to the movements of the heroes, you must use the tube map, the timer and the other screen information very skillfully if you're to intercept them successfully.

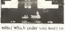
Program. Give My Regards To Broad Street, 64
Supplier. Argus Press Software
Price £7.99
Graphics: ★★★★★★
Sonics ★★★★★★
Gameplay ★★★★★★

Minter Mania

The release of a Llamasoft game is always an occasion of universe shattering celebration. Notorious for endless whackiness, graphic genius and inventive gameplay, Jeff Minter's games often stretch the 64 to its limits. The time was bound to come, though, when such is the great man's inventiveness that he would develop a game so far out that it was quite impossible for humans to play. This, Mama Llama, is it.

You control a family of three llamas and a telepathically-directed killer droid. The droid is used to neutralise attacking baddies which supposedly come in all shapes and sizes.

Since you can apparently select which order you want to play through the phases, Mama Llama is more than just a straightforward zapper. But in fact it's so devilishly complicated that it will take a three headed Vegan slime-octopus to work it all out. I'm not even going to try to give this a rating for gameplay — if you want a real challenge, just go out and buy it.



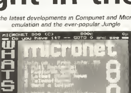
Program Mama Llama, 64
Supplier Llamasoft
Price £7.50
Graphics ★★★★★★★★
Sonics ★★★★★★★
Gameplay Glurk?

Caught in the net

***Bill Donald** looks at the latest developments in Compunet and Micronet, notably Prestal emulation and the ever-popular Jungle*

IF YOU regularly access Micronet and Compunet with your modem and Commodore 64, you will have seen a number of changes since the start of this year, some of them major alterations, some minor in nature There has also been an increase in the number of available private viewdata systems to the network user, of which more later

The latest and probably the best event that has taken place since Christmas as the new Prestel Emulation program from the Y2 Computing This particular package has had a convoluted history, and I am sure I am not alone in wondering what Micronet and Compunet are up to with regard to the Commodore 64



The saga starts in October 1984 when, much to the displeasure of the domestic financial controller I acquired the Commodore modem, (she generally comes out of the stack overflow condition fairly quickly given a chance to operate the machine) In common with most of you during the early days, the telephone costs took a line in cubic proportion to the learning curve We soon discovered, those of us with the Commodore modem, that to access Micronet a program called Terminal had to be downloaded from Compunet (after of course, paying out more money for a subscription to Micronet) For the sake of clarity I will call this program Terminal Mark 1 This program was very much a one way affair, for dual interaction in the way of off line editing for mailboxes, the resident Editor in the modem was fine for Compunet but no use for Micronet Also, the printer options were not too wide, and I had several discussions with Y2 (via electronic mail of course) over this very point

Then in January there came a further blast from Compunet, telling us that an off-line mailbox editor facility was included in the new Terminal (Mark 2) program This was downloaded and I was not impressed at all with the operating instructions I found it VERY confusing, so much so that I continued using Terminal 1, and at the time of writing I have not payed the £10 00 demanded for Terminal 2 Finally, in early March the latest and, by the looks of it the best, Terminal Mark 3 arrives on Micronet, and glory be it is FREE!! My interpretation of the whole episode was echoed by fellow member of ICPUG, Brian Grainger in the last issue of the ICPUG journal, Micronet, Compunet and Y2—"Get your acts together" It should not take this length of time to come up with a realistic Prestel emulation program

What are the benefits of Terminal (Mark 3)? Well, the big plus has to be the editor facility I happen to be fussy about screen format, chopped words and spelling mistakes The second plus point is the printer options, and I am having fun with the Epson and Grappler interface, as I am sure all of you with non Commodore printers will have, too Y2 has also included a high resolution mode for Epson and clones A nice little addition is the inclusion of an on line timer in the bottom right-hand corner of the screen Download Terminal 3 as soon as you can, it really will save you money!

Terminal

My suggestions for Terminal Mark 4 would be as follows — 1 User selection of Commodore graphic symbols in mailbox frames 2 Creation and transmission of DYNAMIC frames, i e sprites 3 On-line alarm clock, user defined 4 Individual on-line call costs displayed alongside clock

Compunet is not visited as frequently as Micronet, and I am sure you all know the reason why The infuriating slowness of response coupled with a small number of access points means a dull thud on the mat when the telephone bill arrives at chateaux Donald I really believe that unless the system is improved by September 1985 at the latest, then there has to be problems ahead for the long term survival of Compunet Why have I chosen September? That is when the renewals become due for next year, and I forsee this being the crunch for many Compunet users

I am not anti-Compunet, far from it, the quality and range of programs far exceeds that of Micronet The contents of Compunet for a Commodore 64 user are a goldmine However, it is no good to any of us having top-notch material available and yet it taking upwards of 10 15 minutes trying to log-on However, when the door does open, the JUNGLE is brilliant, COMPUCAT and sheer information are superb The irony of this is that the bulk of Compunet material, unlike Micronet, is generated by us, the users One of the most useful pages displays an index of all software available on Compunet along with page number, type and cost

The other networks I mentioned earlier are the Knowledge Index and Profilogic They appear to be similar in style and content, abstracts, news, stock market and company information Based on American mainframes, naturally the running costs can be rather high Certainly I would provisionally budget £50 00 each as a realistic start-up and familiarisation cost I would read their literature very closely to ensure that the type of information you require is there For instance, the published books' database is only abstracts The British Library viewdata system Blaise, which is available on Compunet (at a price), would probably bear looking at to see the sort of format you would be buying Better still, ask your public library for a look, Blaise is connected to most of the large ones I fear that these American based viewdata systems have little hope of succeeding in this context simply because of the high initial cost without a clear picture of the product Suggestion let us have some FREE demonstrations of their worth on Micronet or Compunet

If you want a chat or come across any interesting frame on the networks let me know, my Prestel mailbox number is 079575420 ■

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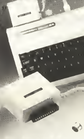

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I ain't 'fraid of no ghosts!

David Crane, top programmer for Activision, lets ***Christine Erskine*** *in on the secrets behind Pitfall, Ghostbusters and his other top selling games*

LAST YEAR'S Christmas hit in the software industry was undoubtedly **Ghostbusters**. The Commodore 64 version alone sold over 100,000 units in the UK, and its use of music and speech synthesis is probably the most spectacular yet on a home micro.

We spoke to the writer and designer of Ghostbusters, David Crane, Activision's top programmer, when he visited this country from California recently. Ghostbusters was far from David's first big success — he wrote many early games for Activision on the Atari VCS machines, not to mention **Pitfall** and **Decathlon**, also available on the Commodore.

Ghostbusters was, however, the first game David programmed directly on to the Commodore — previously he had always written primarily for the Atari micros — Commodore versions coming later.

"The first time I went to see the movie in the States — when it was breaking box office records — I had no idea that Activision was negotiating with Columbia for computer rights. It was a good thing I enjoyed the movie. A couple of weeks or so later, I was asked if I would be interested in writing a game to be based around Ghostbusters. I was interested, but the big problem was that they wanted it finished in six weeks time.

"I usually spend around eight months over a game — the first two months I work out an overall game plan and write the screens and then spend six months refining it, going over all the small details and debugging.

"I was interested in Ghostbusters, but I said I didn't think I could do it on my own. So for the first time, Activision decided we could do Ghostbusters as a team effort — I could work on how the game was to look and what would be contained, but we could get others to help with the implementation and refining job.

"That evening I went to see the movie again — this time from a rather different viewpoint — and I realised that I already had some screens for a game I had been playing around with that could be used in Ghostbusters. It seemed to make the job a little easier. I agreed to do it, and began burning the midnight oil from that day on."

Slimers

The screens David had been 'playing around with' previously were the equipment buying stages and the vertical view of the car on the road, used in the final version when the ghostbusting team set off to trap slimers.

"I had this vague idea for a game whereby you were buying weapons to wipe out some kind of baddies you might then meet on the road. They fitted in quite nicely with Ghostbusters."

David worked on these screens as a starting point. "In the first two days that I worked on it I had my game plan defined, by sitting down and looking at the constraints I had to work within. I had some screens, I had to produce something that was recognisably from the movie, I had to include features from it, I wanted to include some of the humour in the movie. At the same time, I very much wanted to write a game that would stand up on its own as a game without the Ghostbusters logo attached to it.

"The comic elements — such as the vacuum cleaner and the tins of marshmallow sensor, I was particularly keen on. After all, it's hardly hi-tech to go around chasing ghosts with a vacuum cleaner."

The music which was distinctive on Ghostbusters was also David's. "That was fairly easy — it was just a case of sitting down with the sheet music from Ray Parker Jnr's song and tailoring it to the capabilities of the Commodore. Then, as the song was such a big hit at the time, I thought it would be nice to include the lyrics, and came up with the bouncing ball idea at the beginning.

"The speech, which I didn't do — that was commissioned by Activision from Electronics Speech Systems, a Californian company — went in because it was fun, and that was the main idea we wanted to put across in the game."

The final version of Ghostbusters was handed in at Activision bang on the six week deadline. Since then, David has not yet started work on a new game. He was so enthused by the way that the 'team' format had worked for Ghostbusters that he is keen to try it for all future Activision releases. "I'm trying to promote the idea of group projects and setting up a team within Activision with some of our younger designers Though if I get an idea for a new game I can always drop everything and go and work on it ''

Apart from the speed at which Ghostbusters was produced, the game marked a departure for David in other ways

''Previously, I had simply been developing my own ideas, rather than being given a theme to write around Over the five years I've spent at Activision, I've experimented with all types of games — I think the only thing I've never tried is a straight adventure program

Video

''Normally, I would be working on something which I would be aiming at the market about eight months later So while everyone was writing space games, I would know that the one thing I couldn't be doing was writing a space game because by the time it was finished, they could well have gone right out of fashion ''

David's early programs, for those with long memories, were titles such as **Dragster, Fishing Derby, Laser Blast, Freeway** and **Grand Prix,** all for Atari VCS The US market concentrated on video console games, as distinct from home computer games, for longer than in Britain

''When I joined Activision as a founder member, five years ago, we felt that the video game market would gradually give over to home computers by early 1985 That's more or less what happened in the States, except that we didn't envisage video games going up, and then coming down so fast ''

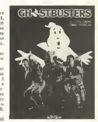
David's first big computer software success was with **Pitfall,** then **Pitfall II,** followed by Activision's **Decathlon,** which also sold well, though in this country it was rather overshadowed by Ocean's **Daley Thompson** product In the US, though, he has carved out the sort of following that, say, Jeff Minter, has over here

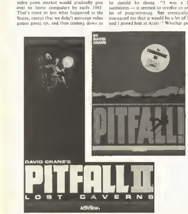
He's always been something of an electronics whizz kid, and designed his first computer at the age of thirteen

''I took all the extra courses in computing and electronics that I could at High School in Indiana, which is where I come from originally There I designed a computer specifically to play Tic-Tac-Toe '' I wasn't sure quite how momentous an achievement this was, until the language problem was solved Tic-Tac-Toe is American for Noughts and Crosses Well, it's a start

'By the time I left High School, I could program in three different languages, but there didn't seem to be anything very exciting I could do with that It would have been easy to get a programming job in say a bank, but I went off to college instead to do an electronic engineering course ''

After leaving college, David headed for Silicon Valley and designed microchips for a living A friend was at the time working as a games designer for Atari, and did his best to persuade David that this was what he should be doing ''I was a little suspicious — it seemed to involve an awful lot of programming But eventually he convinced me that it would be a lot of fun, and I joined him at Atari '' Whether games designing turned out to be all David hoped for or not, it's a market he definitely wants to stay in





''The industry seems to have settled down a lot in the States now — obviously some companies are having problems, but I think there should be a stable growth in the home computer field now I want to stay in the computer entertainment field for at least another two years, which should be very interesting as the term entertainment is broadening out rapidly For example, you get products now like Activision's **Designer Pencil** or the **Music Studio,** which are entertainment, but at the same time useful ''

I wondered how David felt about impending developments in the hardware industry, with Jack Tramiel threatening to bounce back into the limelight

''Well, we at Activision don't really mind who is battling it out for the hardware market, since we're exclusively a software company We'll write our games for whichever machine is selling

''As for the Atari machines — I'll believe them when I see them You can't fault Jack Tramiel's track record and there's a lot of rubber gloved respect for him in the States Certainly a machine as powerful as the Macintosh at a third of the price sounds very impressive

Cassette

'Then there's Commodore's C128, which as I understand will be very similar to the 64, but with extra features I'd say if we wrote for the 128 and used those features then we ought to do it so that you can still do the game for the 64, because of its huge user base ''

And how does David feel about the British market? ''It's a funny thing about the market in Britain — while it may not be ahead of the States, the States always watch the British developments from a distribution and marketing point of view, to see what we'll be doing in a couple of years time

''The thing I can't understand is why you go through all that business of loading software from a cassette — in the States we never had the patience to do that '' ■

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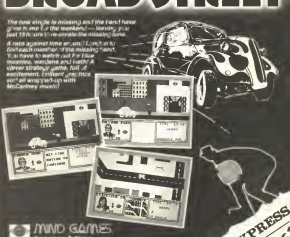

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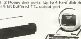

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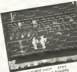
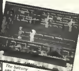

The lower guard room start here avoid the two knights

The Staff of Karnath
ULTIMATE
PLAY THE GAME


The balcony avoid the monk use Forthrim against the knights

Seeking the pentacle

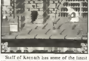
Tony Kendle dusts off his spell book and tackles Ultimate's epic

ULTIMATE is renowned as the single most innovative and accomplished Spectrum software house The company has a string of 16 and 48K hits to their name, which form the technical yardstick by which other games have been judged over the last two years However, until the release of **Staff of Karnath**, Ultimate had steadfastly ignored the Commodore 64, even though it offered the only market comparable in size with Sinclair's machine Occasional conversions had been released, **Jet Pac** on the BBC B and Vic 20, **Sabre Wulf** for the BBC — but it was almost as though they were aware that the competition of top quality games was higher on the 64, and that something that was a graphically brilliant sprite on the Spectrum would only be average on a sprite-based machine

Despite this, demand for Commodore conversions has been high

Sprites

Meanwhile Ultimate has taken a quite new approach in the games that have finally been released specifically for the machine If you hadn't seen the box, you would never have guessed Staff of Karnath was by Ultimate, because gone are the crystal clear, wittily designed characters and hundreds of locations that typified their latest Spectrum games, **Knight Lore** and **Aliens**, instead you have what have to be called 'chunky' sprites and only 40 odd rooms, although many of these cover more than one screen The immediate reaction of many people who have seen the graphics is one of disappointment, but please don't let that put you off — it's a game written specifically for the 64 and it's much better than a conversion is likely to be



Staff of Karnath has some of the finest 3D scrolling backgrounds seen to date, many of the wonderful humourous touches that are typical of the company and, most importantly, some of the best game play seen in their releases Chunky graphics partly reflect the hardware's trade off between resolution and colour, and are of little real consequence, whereas their Spectrum games have at times been criticised for relying too much on technical wizardry whilst being unplayable by any but the most hardened arcade freaks

Karnath, however can be enjoyed by the most unco-ordinated, and initial points are easy enough to gain to provide incentive, whilst still giving a feeling of accomplishment

Even though you soon come up against greater difficulties, there is the conviction that the next step will be achieved with a bit of thought Combine this with the smoothness of the graphics that aid the feeling in the game and you have that elusive quality — addictiveness

Okay than, what's it about? Karnath is the first in a series of four games and falls firmly into that category known to marketing men everywhere as the arcade adventure Joystick reaction skills are backed up with the need for some deduction and forethought to overcome the next obstacle You play the part of Sir Arthur Pendragon, magic wielding knight errant, and you must work your around a haunted castle, confronted by a series of horrors including giant skulls, ghosts, demons, hooded monks, vampire bats, a very vicious witch and evan a giant toad all accompanied by appropriate sound effects

Pentacle

The castle is seen in cut-away edge on view, and although there aren't many rooms getting around them is such a job that it seems a very large game The aim is to find the sixteen parts of a pentacle, and deliver them to an obelisk situated in the bottom of the castle Doing so successfully gives you the chance to take a shot at the

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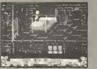
nl Staff itself, but only one of your dozen or so spells will work and you have to find the right one very quickly indeed Your energy level goes down a bit every time you use a spell, and a lot when attacked by a monster but it goes up to 100% again every time you deposit a piece in the obelisk There is also a time limit of six 'game hours in which to complete your task although you will be relieved to hear that despite claims that there is a real time' clock, one game hour is much shorter than a real one It's highly unlikely that you will survive long enough to see midnight strike anyway

Stumped in the Timeless Room ?

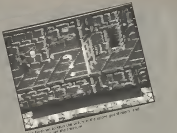
The problem with games like this is knowing how much to give away without making the whole thing redundant, but it doesn't hurt to say that the spell you start with, **Forthrim,** is generally the most useful onster deterrent and should be always in a new situation **Ibrahim** however s to have a particular talent against horned beasts, although not always for long as you would like Other problems the snake and the fire in the great hall easily solved by a trial of spells, but g past the guardian to the door on the t of the first location, getting the pieces the cobweb or in the bed, or finding out how to use the flying carpet will take a lot of work



use Thrabin to activate the carpet

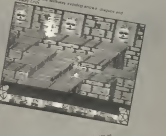
Karnath doesn't stand clearly above other 64 software in the way Ultimate's Spectrum games often do, but it must be in the top ten or twenty It's also worth remembering that Ultimate has the habit of every so often releasing games that are a r advance on anything that has gone ore — so only time will tell what they ve lined up

As the game gets older we'd like to hear m you about your tips, and to find out has finished it Also let us have some ments about whether you would like to more in depth looks at classic game s ■

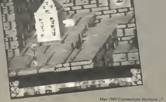


Use Forthrim to stun the witch in the upper guard room and move fast to get the treasure

Travel along the walkway avoiding arrows dragons and deadly birds



Use Barscate to deposit the pentacle pieces one by one on the obelisk



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Home Applications Software

Three of a kind

*In the first of three features in this issue on home business packages, **Trevor Doherty** looks at Audiogenic's Big Three*

THREE ESSENTIAL types of business software dominate the market: wordprocessing, allowing text to be saved, edited and formatted, spreadsheets in which you can organise figures and text into rows and columns and perform an infinite variety of calculations, and databases which keep lots of similar records which can be amended, sorted, selected and combined as required. In addition there are specialist packages for applications like accounting and stock control but these are often only customised databases designed for that specific purpose. There are very few business tasks that cannot be tackled if you have the three essentials, and that applies equally well to home or office. Audiogenic has a range of software to fit these thre categories which sells for a total of under £85 — the price of a single product from some other software houses.

Pre-formatting

Five years ago, in the early days of the Commodore Pet there were only two word processors worth considering, Word-Pro and Wordcraft, a direct descendant of the latter is **MICRO-WORDCRAFT** for the 64 (£29 95 Disk or Cassette). Another relative of the original Wordcraft program, Wordcraft 64 is available from Dataview (£49 95 Disk) (reviewed in the October 1984 edition).

Micro-Wordcraft is a pre-formatting word processor, that is to say the text format is displayed on the screen as you type in the same way that it will appear when you print it out, fine that's how most office word processors work. On the 64 though, there's a big drawback, the screen is only 40 characters wide while most printers print 80 characters across the page. What happens with Micro-Wordcraft is that as you type onto the screen the screen scrolls across until you have reached the right hand margin and then jumps back to the beginning again. To read you text properly on the screen once entered you either have to scroll from side to side or re-format the text to 40 columns. I generally prefer to use a post-formatted word processor on the 64 which allows me to bash text in and sort the formatting out when I print it.

Having said that, Micro Wordcraft is a competent word processor, and has most features which you could ask for. The manual is most comprehensive and I found it very easy to follow with helpful "cues" in the margin. There are also on screen help facilities. Text can be entered up to 99 columns wide, centered, or justified. The main control key is the CBM key, as an example, CBM ← sets a tab. Tab settings are shown on a "ruler" which appears across the top of the page. The text on the screen can be manipulated, edited, moved or deleted at will and a full "search and replace" facility is provided. Merging of standard paragraphs or names and addresses can be carried out, from files which have previously been saved on disk; tape users have some limitations on this facility. Pages are set automatically or can be forced, using the F8 key. The F7 key sets the end of a paragraph, this is one feature I never got used to, other word processors tend to use the **RETURN** key.

All disk functions can be accessed from within the program, including formatting, so if you start typing a document without spare space available on an existing disk, all will not be lost. Micro-Wordcraft supports standard Commodore printers, RS232 interfaced ones and has integral software to drive a standard parallel (Centronics type) printer connected to the user port. It is very easy to incorporate printer control characters in your document.

At the price, there can be little to rival Micro Wordcraft, in fact it gives many word processors at twice the price a run for their money. By spending three times as much, you could buy a better word processor (Easyscript or Vizawrite for example) which would be somewhat easier to use, has spelling checking available and integration with other software. But for many users Micro Wordcraft is a bargain.

Micro
Swift
SPREADSHEET
64
INCLUDES
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CAR COSTS

The database Micro Magpie (£39 95) is only available on disk. The restrictions of cassette file handling (lack of random access, slow speed) mean that only limited databases can be offered on cassette and Micro-Magpie could never be described as limited. In fact, the facilities available approach Superbase 64 (Precision) — which I regard as one of the best database systems available on any micro — but that costs over twice as much as Micro-Magpie.

Access to Micro-Magpie is via a series of 'pop-up' menus, hit the F5 key and a menu appears on the screen. Scroll down the primary menu using the F7 key to your choice and hit F5 again, the next menu appears partially overlapping the first one. All very colourful, all very user friendly at first, but this type of menu can frustrate you as you become more experienced. A help facility is provided on the other side of the disk, which makes the manual almost unecessary. Turning over a disc in a 1541 drive worries me a bit, it could cause dust and dirt to be flung out of the diskette as it rotates the other way. Two ready-to use applications are included, a mailing list and a stock control system.

In order to use Micro-Magpie for your own application you first have to create your record layout. Up to two "forms" or screens are available for this, the second form can actually be bigger than a single screenfull, though. Field titles are inserted (a field is a separate piece of data within a record, such as "address") and the number of characters laid out. This uses a simple concept of typing in the desired number of upper-case characters for alpha numeric fields and lower case characters for purely numeric ones. Once this is complete the record design is saved and data can be entered. The data can be amended later as required, new records added and old ones deleted. In order to carry out searches for particular records, it is necessary to learn how to write a procedure in Micro-Magpie. The Micro-Magpie procedure language is straightforward enough, but it is disappointing to have to use it for something as fundamental as a search.

Calculator

Other facilities available include a calculator and the ability to draw three types of graph from data held within the database, this again requires a procedure to be written. A good range of printers is supported as with Micro Wordcraft.

Databases are notoriously difficult to review, more so than any other business program, very often difficulties don't show up until you have a lot of data stored or are trying to run a complex procedure. I actually found Micro Magpie much more difficult to get on with, initially, than most other databases I have used, mainly due to the need to master the procedure language to carry out fundamental tasks. If you are in the market for a database at this price Micro Magpie is more powerful than the similarly priced Practifile (Practicorp), but that has the advantage of linking to the

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Audiogenic
PROFESSIONAL SERIES

excellent Practifile II spreadsheet, whereas Micro Magpie is strictly a stand-alone For ease of use I would suggest a look at the newly announced Superbase Starter, costing the same as Micro Magpie, and up gradeable in steps to the full Superbase specification If you're prepared to put the time in to master it, Micro-Magpie offers a lot of facilities for your money

Pop-up

The final product of the trio is the spreadsheet MICRO SWIFT (£19 95 disk or cassette) This uses the same "pop up" menu system as Micro-Magpie, and once again I found that to be a mixed blessing The facilities provided are extremely good for a Commodore 64 spreadsheet, for the price they are fantastic!

The manual was clear and easy to follow, and included on the disk are some useful "templates" — sheets already laid out with titles and formulae in place for you to enter your own figures — covering Home Budget, Car Costs, Loans and Expenses These allow you to get the hang of using a spreadsheet very quickly and would give beginners some useful ideas for setting up their own sheets

In use Micro-Swift is actually very similar to the spreadsheet part of Vizastar, which is in itself very similar to Lotus 1 2-3 on 16 bit machines You can insert and delete rows and columns, edit text and formulae within cells, vary the width of individual columns by using the cursor keys and use the cursor to "point" to cells when building up formulae Around 23 mathematical functions are provided and simple horizontal bar graphs can be drawn on the screen Text is allowed to 'spill over' from a single cell, making it possible to combine text and figures at will The copy function is as comprehensive as any I have seen, with the unusual feature of "naming" a source block of cells so that you can use them in other parts of the sheet, by merely recalling that name There is even a programming facility where you can set up a series of steps to be carried out automatically The speed of calculation, cursor movement and so on rival the impressive Practicalc II

Outstanding

This product is so outstanding in so many ways, that I feel really sorry to point out what was to me a single, serious drawback Remember the pop-up menus, which make it so easy for beginners to use Micro-Swift? Other spreadsheets which use similar menus allow an alternative 'shorthand' method of using facilities, similar to the "classical" command structure pioneered by the very first spreadsheet Visicalc With Micro-Swift there is no alternative to those menus and the better you get, the more they slow you down I will illustrate this with an example, inserting an additional column On a spreadsheet using the classic command structures, this involves just three keystrokes / I C (Command, insert, column) Micro-Swift requires no fewer than twelve keystrokes to do exactly the same thing, F5 F7 F7 F5 F7 F7 F7 F5 F7 F5 F5 F6! This takes you through the three menus, command, worksheet and insert, selects the choice and returns you to the sheet · If only the alternative command structure were available this product would be difficult to fault As it is, at the price, you're going to have to put up with those menus, because there's nothing else to compare My other standard recommendation in this price range has been Busicalc, which has snail-like calculation speed in comparison (it's written in Basic), has fewer facilities, but uses far fewer keystrokes in its commands

Commands

Audiogenic has tackled this important market head-on with products which offer outstanding features for the money However, it is a real shame these products are all stand-alone and data cannot be shared or exchanged between any of them For me Micro Wordcraft and Micro-Swift are easier to recommend than Micro-Magpie, which is hard to 'get into' Micro-Wordcraft is a solid, competent product and, for the money, is probably unbeatable The star of the trio is undoubtably Micro-Swift, which is so good in every other way, I think you could probably ultimately forgive the clumsy command structure ■

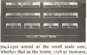
Ahead of the field

Fieldmaster's inexpensive packages present the ideal opportunity for small scale users to investigate home applications

I HAVE LONG suspected that many computers are bought with promises to other members of the household that bank accounts will be kept, birthdays remembered and "things will really get organised when we get a computer" Much midnight oil is then burnt either trying to get a Basic program written from scratch to work or debugging the 1000 line listing that took six hours to type in, and the attempt to keep household finnaces on the computer is abandoned in favour of the latest game

Organized

Packages to take the slog out of getting organised are what is needed, but finding the right one is not easy There have always been business programs around for the 64, more than for most rival machines in fact, because of the easy conversion from the Commodore Pet which was one of the most popular business machines in the UK before the advent of the IBMPc The problem has always been the price, typically £50 to £75, the need for a disc drive to run most of them, and potential difficulty of use for the novice.



Fieldmaster has now produced a series of packages aimed at the small scale user, whether that in the home, club or business, priced between £19 95 and £29 95 and available on disk or tape There are six different packages and each one comes packed complete with a concise eight pae instruction manual

HOME ACCOUNTS (£19 95) is a four part program which allows you to keep track of your household expenditure, income and bank account It also has a mortgage repayment reckoner and a calculator simulator One of the first features that impressed me was the clarity of the manual, even down to something as apparently simple as loading instructions Absolute beginners would find no difficulty in getting the package running Once you have loaded the program a helpful and simple selection menu is displayed on the screen, this is a model of clarity showing the careful analysis and design work which Fieldmaster has put into these packages The Bank Account section allows a single month's transactions to be entered, showing a running balance, up to two screens full Entries may be corrected rather crudely, by completely deleting them and re-inputting the correct data A month's statement can be printed out, and saved to disk or tape

Accounts

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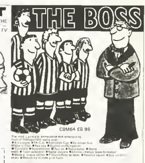

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WORKSHEET
MAIL LABEL
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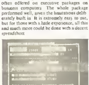
RECORD CARD

calculated and displayed The result can be printed out, or further calculations tried The final feature, the calculator, displays what looks like a hand held calculator on the screen and allows you to use the numeric keys to perform calculations just like you would using an ordinary ten digit calculator with memory I felt this section was a bit of a gimmick, but it is a feature often offered on executive packages on business computers The whole package performed well, given the limitations delib erately built in It is extremely easy to use, but for those with a little experience, all this and much more could be done with a decent spreadsheet



25000
14
25
Type of Loan: Compound interest per month on the reducing balance
Again(A)
Print(P)
Menu(F7)

WORKSHEFT (£19 95) is a spreadsheet, but not one that I found particularly outstanding The instruction manual was again wonderfully clear, and the start up menu good but the rest of the program was disappointing A spreadsheet allows you to organise text and data into rows and columns and then perform calculations on it With Worksheet you must decide how many rows and columns you need before you start together with a name for the sheet you are going to work on The format of the screen is five rows by twenty columns with fixed column widths, and this cannot be altered

Having entered some data, this may be subsequently edited and simple calculations set up with formulae If your calculation sheet is bigger than a single screen, the screen does not scroll one row or column at a time, but jumps to a whole new 'page' Rows and columns may be inserted or deleted the sheet may be saved to disk or tape and printed out Worksheet will also convert a single row or column into a bargraph What makes Worksheet so limited is the lack of features common in other spreadsheets like built in mathematical functions, the ability to replicate (copy) cells, move rows and columns around or smoothly scroll around the sheet Arguably features like replicate may not be easy for a beginner to use, but I found that Worksheet was actually much more clumsy to use than using limited facilities within a full featured spreadsheet For a similar price I would look to BUSICALC (Supersoft) or MICRO—SWIFT (Audiogenic) both of which offer much more, and to my mind are easier to use

The next Fieldmaster Product is a simple database called **RECORD CARD** (£19 95) which allows up to 100 records to be stored in each file Having loaded the program the main menu is displayed from which all functions are selected The first function, "Setup ", allows you to design your record card layout, a file name must be given and a 'security code' allocated to the file This need for a security code when saving and loading files seems unnecessary on a system mainly intended for home use — It applies incidentally to all the Fieldmaster range I looked at — the only way round it is to use the same, easily remembered number for all files

Preformed

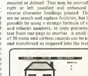
The record card layout is partially preformed into a maximum of twenty 'fields' or different pieces of information arranged in ten rows on the screen Titles are entered for each separate field you want to use and the length — how many letters or numbers you want to use and the length — how many letters or numbers you want in that field — set by using the cursor keys If you don't need all twenty fields spare ones can be deleted It pays to be very careful during this operation because mistakes cannot be easily rectified, the whole design has to be started again Information can then be added to the file and the file saved to disk or tape Individual records may be selected by paging through all the cards, inputting a known record number or searching for an item which appears on a card When a card is shown on the screen you can select that card to be printed later After several cards have been earmarked for printing you return to the main menu and ask for them all to be printed

Alternatively, every record may be printed It is possible to sort the whole file on a single field, and individual records can be changed or deleted As all records are held in memory at once (a must for a cassette system) selection is impressively rapid, but sorting and subsequent file reorganisation following deletion is pretty slow Overall the package is rather let down by the limit of 100 records, although you could put more than one record on a card if they were short, but his would limit your ability to select and sort In the same price bracket DFM (Dialog) is more powerful, holding up to 256 records in memory and has a linked mail labels routine

Labels

The **MAIL LABEL** program from Fieldmaster (£29 95) is completely separate and cannot read the data from RECORD CARD Operation is almost identical, but there are some additional features It is possible to use this program as a database, each entry being limited to ten lines of data Up to 200 entries may be kept in memory in a single file By using 'linked' files of identical layout searches may be made through a number of files on the disk version The main purpose of the program is to print sticky labels and that is done by viewing the records on the screen, individually selecting those you want to subsequently print and then selecting print from the main menu This is a tedious process if you want to select say, 175 out of 200 labels It is easier to print them all and throw away the labels you don't want I liked very much the 'label image' of the records on the scren and the ability to print up to 500 copies of any label at a time

PAGEWRITER (£29 95) is a word processor, but a rather unconventional one Only one page of text 66 lines by 79 characters wide can be worked on at one time, equivalent to a single page of A4 It works on the 'pre formatted' principle — you type exactly as you want the page to be printed — but as you enter text, the display does not scroll, but jumps sideways after 40 characters Simple editing is possible, using the INST/DEL key, or entire lines may be inserted or deleted Text may be centred or right or left justified and enhanced or reverse character headings printed There are no search and replace facilities, but it is possible by using a strange formula of row and column numbers, to copy portions of text from one page to another A small file of 30 name and address records can be kept and transferred as required into the text



One fairly surprising feature is the facility to carry out calculations on numbers held within the page using a twelve character formula which, once mastered is quite straightforward to use This allows, for example, invoices to be produced Pages may be saved to disk or tape for future use This is not a word processor that I would like to use for writing articles, or any long document, but this is not what it is intended for

The final package from Fieldmaster I looked at was **POSTERPRINT** (£21 95) This allows you to design posters using letters which are produced on the printer about an inch high, and to design symbols, logos or little pictures to go with the text The text available is upper case only, A-Z and 0-9 and has some symbols such as the £ sign You enter text one line at a time and editing is limited to deleting a single line and re-entering it Symbols are built up from a range of eight shapes on the screen, and surprisingly pleasing images can be produced The finished work can be saved to disk or tape for future re use I found the best way to produce an acceptable final product was to print out the words and symbols separately, cut and paste them arranged as required on a new sheet of paper, and then photocopy the finished page An advertisment I produced using Posterprint was much admired on the notice board, and I sold my old colour television!

My conclusions about the Fieldmaster range are that they are well thought out, extremely well presented, with excellent manuals Every package has useful examples included if you buy the disk version The menu selection system common to all the products is easy to use A complete beginner would find most of these products very easy to use However, I would recommend any intending purchaser to carefully consider his future needs because the capacity of all the packages is strictly limited, and a comparison with some of the alternatives I have suggested should be made ■

Two of the best

A comparison of two of the classic spreadsheets, Practicalc II and Vizastar 64 — both integratad packages offering powerful facilitias

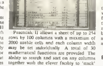
ONCE IN A while, as a reviewer of computer software, you come across a package which really stands out from the crowd For the Commodore 64 I can think of a hand-full of business packages which I would put into that category, the 'classics' of the software world which become standard recommendations and, usually, best sellers To have for review two packages which are both of this standard is an unusual pleasure indeed

Integrated

PRACTICALC II (Practicorp, disk £69 95) and **VIZASTAR 64** (Viza, disk + cartridge £99 95 or £129 95 for the extended XL8 version I tested), are both integrated spreadsheets That is to say, they integrate the traditional spreadsheet rows and columns format where titles and figures can be laid out and manipulated with other functions, such as word processing, graphics and database capabilities The most famous example of such a product is LOTUS 123 which runs on the IBMpc and other business computers

Each of the two packages has a different approach, different relative strengths of the individual functions Practicalc II integrates an excellent spreadsheet with surprisingly useful word processing facilities, a limited database and some graphics ability It comes with a nicely printed manual which is unfortunately for the Apple version! However there is a neat supplement covering the limited differences for the Commodore owner, the package having been thoroughly converted to take advantage of 64 features

I found the spreadsheet easy to use, the command structures are classical spreadsheet style with the "/" key as the control which provides a multiple single character choice menu on the top command line This product is fast, the speed of cursor movement, calculation and general operation exceeding that of any spreadsheet I have used on the 64 A number of features of Practicalc II may be customised to suit your particular requirements during use, and a more comprehensive customisation is possible by setting up desired features in a configuration file which is incorporated during loading This includes colours, printer definitions and an 80 column display option! The 80 column display is produced without any additional hardware requirements, but in reality a monochrome monitor is needed to use it without eye-strain On my 1701 monitor I found it usable by turning the colour off, but if you're using an ordinary TV you could switch to 80 column to preview what a sheet will look like when printed A useful context sensitive help facility displays one of five screens-full of assistance, relevant to the operation being carried out when help is summoned by pressing the f8 key



Practicalc II allows a sheet of up to 254 rows by 100 columns with a maximum of 2000 usable cells and each column width may be set individually A total of 30 mathematical functions are provided The ability to search and sort on any columns together with the clever facility to 'stack' columns on printed output makes Practicalc II a very usable small database system For example, four columns representing name, address, postcode etc , can be listed one after the other to produce mailing labels By sorting the records, which are represented by single rows on the sheet and then printing just a portion of the sheet it is possible to select certain records for output

These limited database facilities can be extended by linking up with Practicorp's dedicated database package PRACTIFILE It is possible to save partial sheets to disk as well as complete one and sheets may be recalled from disk "offset" at any position Any number of similar sheets may be recalled from disk, one on top of another, and Practicalc II totals the fields which are superimposed, thus a consolidation of several accounts could be produced

The ease of operation of Practicalc II is much enhanced by the ability to 'point' to cell references when entering formulae, by moving the cursor around the screen Full row and column insertion and deletion is available and titles may be fixed both horizontally and vertically Replication (copying) is extremely important if you are going to build up complex sheets quickly, and Practicalc II provides a most comprehensive facility Not only can you copy and expand data in cells, rows columns or blocks, but you can also selectively erase either values or formulas which makes the creation of blank 'templates' easy Once you have set up your template, prompts can be added, "?enter this months sales" or "?interest rate", allowing persons other than the original author to use the sheet with ease The required data is entered following the prompt, Practicalc II enters the value in the correct cell and asks the next prompt When all the prompts have been answered the spreadsheet is calculated according to the formulae set up by the author

Bar charts

The graphical abilities are limited to horizontal bar charts which can be low-res, with a set of + or − signs for each unit of value, or hi-res which draws solid bars Lines or boxes can be drawn using any keyboard character, and by combining this feature with single character width columns, neat sheet layouts can be created Incidentally, both upper and lower case letters can be used (the original Practicalc only offered upper case), but annoyingly lower case has to be re-selected using the CBM/SHIFT after carrying out certain operations which return you to upper case displays

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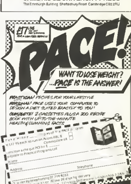
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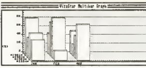

The final main feature of Practicalc II is a built in mini word processor Text can spill over from a single cell across the screen up to a pre-determined number of characters with full word-wrap facilities This means that words are not split at the end of a line, but are moved to the beginning of the next line Text 'belongs' to the left most cell of its row Once text has been entered it may be edited using the user insert/delete keys, but a line can also be 'split' at any point to allow longer portions of text to be added Text can subsequently be re-formatted to different line lengths 'blocked' or right justified An unusual feature allows a single cell to be deleted, closing up the text around it, without disturbing other items shown on the same row of the spreadsheet It is also possible to insert a single cell in a similar fashion Whilst the word processing facilities are not as comprehensive as a dedicated word processor, I found them adequate for a wide range of duties, particularly when combined with the normal spreadsheet commands such as "search" There is one area where Practicalc II actually scores over a traditional word processor, the ability to produce output to a printer in multi-column format — like a magazine

Speed

The features I have mentioned, on line help facilities, the overall ease of use, the speed of calculation together with the ability to combine word processed text, calculated tables and simple graphs in a single sheet, make Practicalc II one of the best pieces of software I have seen for the Commodore 64 In fact for many applications, this is the single package which will provide everything you need

Vizastar integrates a full featured spreadsheet, a powerful database and graphics facilities all supported by a simple procedural programming language There are two versions available, both provided on disk with an accompanying cartridge The more expensive XL8 version I used allows more data to be held and has additional graphics facilities It is nice to see what Viza has taken earlier reviews comments seriously, and the revised manual provided is a model of clarity, with an excellent index There is also a complete tutorial and a useful quick reference card as well as demonstrations and examples provided on the disk

All the functions of Vizastar are accessed from within the spreadsheet, which operates from a full-word menu command system displayed across the top of the screen The control key is the CBm key and the space bar then moves through the choices until return is pressed As you move through the primary menu the relevant secondary choices appear underneath Once you have selected a menu sequence once — such as SHEET INSERT ROW — this will be remembered and easily re used until another sequence starting with SHEET is used

Functions

The database section of Vizastar allows 64 fields per record arranged into up to nine screen layouts, with 1200 records per file and up to 15 files in a database That would seem more than adequate for most applications! To set up a database you first design your record layout, and Vizastar makes this easy to do and allows quite attractive borders etc , to be included in the screen Data can then be added, either by typing it in, or by importing data from another database I managed to bring data in from Superbase, with no difficulty Once the database is set up records may be accessed in a number of ways, selected, sorted, deleted or changed Selected fields from selectd records may be transferred from the database to within the spreadsheet area All functions of Vizastar may be automated using the special Vizastar 'exec' language This may sound daunting, but it isn't, because the exec language is just a sequence of normal Vizastar commands listed into a column of cells Pressing F8 will then carry out the sequence In addition to the normal commands there are some additional exec commands, for example to set up 'loops' or to 'branch' on the result of a conditional test These facilities allow you to set up a system for another person to use

Alternatively, it is possible to just use the first letters of commands in sequence as on most other spreadsheets All the normal functions are provided, over 25 mathematical functions, insert/delete rows and columns, move, copy, format, title and so on The colour of the sheet may be changed A useful 'date' function is provided which allows a range of calculations using days, months and years to be carried out I liked the way individual column widths can be varied by dynamically altering them on the screen using the cursor keys

When writing formulae you can 'point' to cells, but the point facility has to be turned back on using the F1 key every time a cell reference is added to the formula Up to nine 'windows' or different views of the screen may be available at one time, these can overlap if required The movement of the cursor from one cell to another can be pre-determined by commanding it to skip to the next empty or 'unprotected' cell Cells can individually be protected to prevent data being changed or edited, but I found this did not prevent you 'blanking' a protected cell

The maximum size of the worksheet is 64,000 cells with the XL8 version allowing 40% more use space within that maximum Virtually all printers are supported, and the printing facilities provided are most comprehensive In addition to the usual ability to print a rectangle of cells, you can add page numbers, headers and footers like on a word processor Screen dumps may be sent to the printer at any time Vizastar does not really have any word processing abilities built in, other than allowing simple editing of text and allowing text exceeding the cell length to 'spill over' into blank adjacent cells However text may be imported from most popular word processors and merged with the sheet I found this facility to work well with Easyscript, but when using Vizawrite the results were even better because the imported text is automatically formatted within the current defined printed page width

Part of the standard Vizastar package is a graphics facility which allows vertical bar charts or line graphs to be shown within the standard sheet, these are rather better than the graphical facilities of most spreadsheets However with the XL8 version some stunning multi-coloured graphics are provided These take the form of 'exploded pie charts' — a circular disk with up to twelve different coloured segments and 'multibar' graphs Multibar graphs show four different rows of figures as coloured bars, looking rather like a 3D view of the New York skyline! Both of these additional graphs are shown on a separate screen called up from the spreadsheet, and a screen dump in hi res is possible on dot-matrix printers, even in colour if you have a MCS 801 printer

To sum up, Vizastar is very, very impressive indeed It is difficult to find more than niggling criticisms, particularly now the manual is much improved

Serious

How can I possibly make a recommendation between Practicalc II and Vizastar, as they are both such outstanding programs? Bearing in mind the price differences, I'm not even going to try, each has it's own strengths — the word processing within Practicalc II, the database within Vizastar Either would provide a complete office system if linked with the complementary product, Practifile or Vizawrite The Practicalc/file set up would cost less than half the ultimate Viza combination XL8 with Vizawrite/spell, which would offer a more comprehensive system

With such software available as this, no one could doubt the 64's strength as a serious business computer ■

Audiogenic, PO Box 88, Reading Berks 0734-664646
Fieldmaster, 107 Oakwood Park Rd Southgate London N17, 01 886 6709
Practicorp Goddard Road Whitehouse Ind Est Ipswich 0473-462721
Viza, 9 Mansion Row, Brompton, Gillingham, 0634-813780

Actionblob

Permjot Valia from London sends in this game for the C16 and Plus/4

THE AIM OF Actionblob is to see how quickly you can move from the left hand side of the screen to the right

On the way you will encounter lines of enemy blobs who will only allow you through at one point on the line. Using Q = UP, P = RIGHT and Z = DOWN, see if you can beat the clock

The game uses both the C16's graphics abilities, and simple sound effects, but since there are no POKEs used it's ideal for beginners

```
10 VOL8
20 TI$="000000"
30 SCNCLR COLOR 1,9,5
40 COLOR 0,6,7
50 COLOR 1,7,1
60 GRAPHIC4,1
70 FOR A=7 TO 13 STEP 2
80 FOR B=1 TO 17
90 A$="●"
100 B$="O"
110 CHAR 1,A,B,A$
120 NEXT B
130 CHAR 1,A,B,A$
140 NEXT A
150 X=6 Y=9
160 CHAR 1,X,Y,B$
170 FORA =26 TO 32 STEP 2
180 FOR B= 1 TO 17
190 CHAR 1,A,B,A$
200 NEXT B
210 CHAR 1,A,B,A$
220 NEXT A
230 REM END OF VISUAL DISPLAY
240 H1=INT(2+16*RND(0))
250 CHAR 0,7,H1,A$
260 H2 =INT(2+16*RND(0))
270 CHAR 0,9,H2,A$
280 H3=INT(2+16*RND(0))
290 CHAR 0,11,H3,A$
300 H4=INT(2+16*RND(0))
310 CHAR 0,13,H4,A$
320 G1=INT(2+16*RND(0))
330 CHAR 0,26,G1,A$
340 G2=INT(2+16*RND(0))
350 CHAR 0,28,G2,A$
360 G3=INT(2+16*RND(0))
370 CHAR 0,30,G3,A$
380 G4=INT(2+16*RND (0))
390 CHAR 0,32,G4,A$
400 SOUND 2,300,2 GETC$
410 COLOR 4,6,6 CHAR0,X,Y,A$
420 IFC$="Q"THEN Y=Y-1 CHAR 1,X,Y,A$
430 IF C$="Z"THEN Y=Y+1 CHAR 1,X,Y,A$
440 IF C$="P"AND X=6 ANDY=H1THEN X=X+2 CHAR 1,X,Y,A$
450 IF C$="P"AND X=8ANDY=H2 THENX=X+2 CHAR 1,X,Y,A$
460 IF C$="P"AND X=10 ANDY=H3 THENX=X+2 CHAR 1,X,Y,A$
470 IF C$="P"AND X=12ANDY=H4THEN X=X+2 CHAR 1,X,Y,A$
480 IF C$="P"AND X=14 THEN X=25 CHAR 1,X,Y,B$
490 IF C$="P"AND X=25 AND Y=G1 THEN X=X+2 CHAR 1,X,Y,A$
500 IF C$="P"AND X=27 ANDY=G2 THEN X=X+2 CHAR 1,X,Y,A$
510 IFC$="P"AND X=29 AND Y=G3 THEN X=X+2 CHAR 1,X,Y,A$
520 IF C$="P"AND X=31 AND Y=G4 THEN X=X+2 CHAR 1,X,Y,A$
530 IF TI$="000020"AND X<>33 THEN 560
540 IF TI$="000020"AND X=33 THEN 590
550 IF C$<>" "THEN 400
560 GRAPHICCLR
570 PRINT"SORRY,YOURE OUT OF TIME"
580 END
590 GRAPHICCLR
600 PRINT"     CONGRATULATIONS YOU MADE IT"
610 END
```

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VIZASTAR 64

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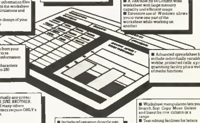

- ■ One word menu lines for easy selection of facilities
- ■ The high resolution grid pattern frames the worksheet giving an easy-to read display

- ■ Extract from your information files and include them into the worksheet for fast powerful calculations and easy reporting
- ■ Instant on screen design of your information records.

- ■ A 1000 Row by 64 Column wide worksheet with large memory capacity and efficient usage
- ■ Extensive use of Windows allows you to view one part of the worksheet while working on another

- ■ Add or remove items from your records without having to re construct your existing information records
- ■ Records up to 1 000 characters long with each item up to 250 characters

- ■ Advanced spreadsheet features include individually variable column widths protected cells a programming facility plus a wide range of maths functions

- ● Supports virtually any printer -CBM, EPSON JUKI BROTHER, OLIVETTI and many others
- ■ Parallel printers require ONLY a low cost cable.

- ■ Include information directly into the Worksheet from VizaWrite and almost any other system
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SLOW *QUICK* SLOW

John Cochrane looks at tape, disk, and the other options in between

THERE'S NO doubt about it, the C2N cassette recorder as delivered by Commodore is a slow beast. You can claim reliability until the cows come home, but that will not impress anyone in these days of turbo-loaders and Winchester drives. But what do you do about it?

Commodore's answer is to get a floppy disc drive, which gives you a practical increase in speed of typically 6-7 times that of the cassette, and additional facilities for storing and accessing data. But there are a couple of other options which may offer much better value for money, according to your particular requirement. You can greatly increase the speed of cassette operations using special software. This is cheap and loses very little in terms of reliability. A new alternative is now available in the form of a high speed tape cartridge system developed by Entrepo, inc in America and distributed by Audiogenic. This is intended as a sort of half-way house between cassette and disc in terms of cost and performance.

Reliability

We shall look at each option in some detail, making comparisons and pointing out the strengths and weaknesses of each. One of the basic means of comparison used here is the time taken to load a Basic program using each of the systems. The time taken is measured from computer switch-on to the end of the loading cycle.

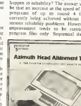
To refresh your memory, the commands which can be used with the C2N cassette unit to control the storage of programs are SAVE, LOAD, and VERIFY. VERIFY is provided in order to check the correct saving of valuable programs but is rarely used in practice because of the high reliability of the C2N unit. In addition to programs, general data (text and numbers) can be stored in Sequential files. These require the use of the commands OPEN and CLOSE. Data is transferred typically using GET=, INPUT=, PRINT=, or CMD. For many operations a 192 byte section of RAM is used as a buffer, thus when saving data to cassette for example data is moved to the buffer and only when the buffer is full is data sent to the recorder in 192 byte blocks. This two-stage process has been adopted, among other reasons, because allowance must be made for the cassette motor to reach a constant speed before data can be saved. Programs do not normally produce or require data in a steady stream, the data is required in short bursts. The buffer combines these bursts so that sensible sized chunks of data can be handled by the cassette recorder. It also tends to slow things down however, even the first part of program storage which gives the program name plus a couple of bytes of data, requires a full 192 bytes of tape storage, the header block.

A second design decision has been taken by Commodore which has a more drastic effect on the speed of operation of the C2N cassette. All data is saved twice (including that 192 byte header block). This is intended to allow for automatic correction of any errors that occur during tape reading. Yet a further safety net is provided by Commodore by including a number of check bits and bytes with the stored data. This adds nearly 30 percent to the quantity of data stored. All this is a bit of an overkill by Commodore, since the C2N is in any case quite a reliable piece of hardware.

This leads us to consideration of a number of quite easy (in concept anyway) ways to speed things up a bit. Simply modifying the save and load procedure to get rid of the double save and some of the multiple error-trapping processes will considerably reduce the load/save times. But just how far can we go and what will happen to reliability? The answer seems to be that an increase in the speed of loading programs of up to round 4 times is currently being achieved without causing serious reliability problems. However, this improvement tends to be restricted to program files only. Sequential data files remain a problem if you want to keep the amount of tape used to a minimum. If you allow for software control of the tape on/off then this will take most of the time and there is little you can do about this unless you do something clumsy like setting up much larger input and output buffers. Don't forget that the fast-loader software must itself be loaded from tape and this takes time. For the 11k example program used, the improvement reduced to around 1.5 times the standard cassette load when including the time to load the fast loader.

Fast-loader

Many producers of commercial software have recognised the value of fast-loader programs and incorporate these into their own wares. Of course there is another benefit for the commercial boys, you can more easily build in anti-copy systems if you control the way that data is stored on tape. For most users the fast loader programs can be of great use but it is an idea to fully get to know the capabilities of a particular product before converting all your software. There is a trade off between speed and reliability so the fastest is not necessarily the most appropriate.



USING A Commodore C2N datasette is still the most common way of sorting programs. But it's notoriously slow, and to get over the problems of loading commercial software at an acceptable speed, most companies now put fast loaders such as Pavloda or Turbo on their games.

The problem is that the C2N is set up with sufficient accuracy to make sure that it has no problems loading software at 300 baud (bits per second) but sometimes cannot cope with 3000 baud signals, resulting in tape loading difficulties. Until now, the only solution has been to have the tape deck professionally set up using an oscilloscope. Fortunately that's no longer necessary, since Interceptor's Micro's' **Azimuth Head Alignment** kit allows you to make the adjustments yourself.

The kit costs £8.99, and consists of a software cassette, handbook, precision screwdriver and cardboard pointer. To align the head correctly you first load the software at 300 baud (if that won't load, then your C2N is in a really bad way!). The screwdriver is inserted into the adjustment hole above the PLAY button, and the head is adjusted until you hear an audio signal and an on-screen counter starts.

The head alignment is adjusted first to the left, then to the right, to find the critical points beyond which the signal from the tape will not load. Putting the head into perfect alignment is a simple matter of adjusting it until it is half way between the two positions, at which point the on-screen counter should run up to 8000 without any difficulty.

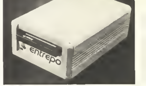
As a final test there's a 3000 baud game, Bandana City, on the B side of the tape, and considering that it's thrown in for free it's not a bad little game at all.

If you are happy to rely on the C2N as your main data storage hardware, then the Azimuth Head Alignment Tape should save you a lot of headaches — you'll probably be surprised to find how many "faulty" fast-load cassettes can be made to work perfectly with the aid of this invaluable package ■

Improved speed with no loss in reliability is the aim of Entrepo, Inc with their new Fast Data Drive tape cartridge system (the cartridges are called wafers) The drive plugs into the cassette port on the computer and is intended to replace the C2N unit for most operations An extension port is provided on the Data Drive, and thus the C2N can be used at the same time in order to transfer programs or data A typical improvement in load/save rate of 6 to 7 times that of the C2N is provided and a few additional facilities come with the system software Yet again time is taken to load the system software and this reduces the overall advantage to 3 to 4 times the C2N

Format

Included are commands to format new wafers (you have to do this with new wafers and discs to make sure that data is stored in an orderly manner), to read the contents of a wafer, to copy the wafer holding the system software, and to copy software between cassette, wafer, and disc The copy software will be important to most users as it transfers software automatically from one storage device to the wafer system The only problem is that the system sofware resides in RAM rather than ROM and that this RAM used is often required for existing programs Thus many commercial programs, and maybe some of your own, will load onto the wafers but may not run from them your own programs, which as I see it is the major use for the Data Drive



Commodore's disk drive for home computing is the 1541 It saves and loads programs and data at around 6 times the speed of the C2N cassette In addition, several new file types are provided by the disk system including User files (not really a new file type as User files are technically the same as Sequential files, which in turn are very similar to program files) Relative files which are a modified form of Sequential file allowing you to access individual items of data, and Random files This last file type is something of a misnomer because rather than offering the full random access files available under many business disk-operating systems (DOS), the 1541 Random files are really a means to access data directly on a disk and thus bypass much of the disk-system software The user must keep tracks of what is where in the file and control the read/write process in a step by step manner

COMPARING THE ALTERNATIVES

OPERATION	TYPICAL TIME TAKEN (Including typing names etc.)
Load 11k program from C2N	235 seconds
Load fast-loader software	80 seconds
Fast-load 11k program	65 seconds
Load fast loader 11k program	155 seconds
Load Entrepo system software	30 seconds
Load 11k program from wafer	30 seconds
Load system plus 11k program	75 seconds
Load 11k program from 1541 disc-drive	40 seconds

With the Entrepo drives you can work with your own programs and data just as if you were using a cassette system but at a much increased speed In this mode of use the Data Driver offers some advantage over the C2N plus fast-loader although it is considerably more expensive Another good point is that you can load any program from a wafer You do not keep a list of where specific programs are, the system will automatically and quickly search through a wafer until it finds the required program No more mucking about with tape counters and fast forward buttons All in all though, my feeling is that the Entrepo Data Drive could provide a lot more There seams little need to devote so much of the computer RAM to software to control the Data Drive, when the facilities provided do not give anything like the capabilities of a disc drive For example, although the tape wafers provide the means to store data you cannot erase unwanted files without blanking the whole wafer This would be very frustrating when using the wafer to store development versions of

No new commands are required in order to use the disk drive Extensions to the OPEN command provide the means to specify the type of file required, whilst a special channel is used to send commands to the drive itself Commodore have given the drive its own intelligence (if that's the right word) so that the computer does not need to provide the complexity of a full DOS on-board The 1541 contains a 6502 microprocessor, two 6522 interface chips, 2K of RAM, and 8K of ROM Thus the 1541 is really a combination of the disk drive hardware and a special-purpose microcomputer The main, or host, computer sends requests for data storage or retrieval and the drive interprets these and organises for itself the location of data on the disk

The 1541 disc drive is, by today's standards, very bulky, slow, and unreliable However, the 1541 has been around for a long time in one form or another and has provided good value for money Technology has been moving ahead rapidly in the disk business and the 1541 has to some extent not taken advantage of the developments There has been an improvement in reliability but little else has changed Commodore's serial port is used for communications with the disk drive and this creates a bottle-neck in the system The recenty announced 1571 disc drive has the potential to transfer data around 10 times as quickly as the 1541, but only when hooked up to the new C128 computer When plugged into a VIC 20 or C64 the data transfer rate of the 1571 is the same as that for the 1541 so don't hold your breath waiting for an improvement there

In conclusion then, if you are in search of speed the cheapest option is to keep the C2N cassette system but use fast-loader software This is also the least versatile solution, and may demand that you will have to spend some time getting to know the ins and outs of a particular package before you can get the most advantage from the potential increase in data transfer rate The Entrepo Data Drive offers high speed with (almost) the simplicity of the cassette system, but watch out for annoying limitations and do not think of this as a cheap disk system Finally comes the 1541 disk drive This gives a significant increase in data transfer speed and in storage capabilities You will still become annoyed at the time taken to load some software, and there is a question mark over some aspects of reliability I find the disk drive quite fast enough in most situations but have experienced the occasional loss of programs and have found that some commercial programs will not load first time

All in all, it's not an easy choice! ■

Hardware: *C2N Cassette*
Price: *£40*
Manufacturer: *Commodore*

Software: *Cassette fast loader (various available)*
Price: *£10 (typically)*

Hardware: *Entrepo Quick Data Drive*
Price: *£80*
Supplier: *Audiogenic*

Hardware: *1541 Disc Drive*
Price: *£210*
Manufacturer: *Commodore*

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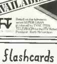

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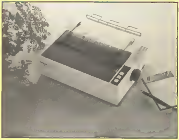

IF YOU'VE EVER wanted to use a really high quality printer with your 64 or Vic 20, you'll know the problems of interfacing which can arise Commodore's own printers make life easy, but can't always compete on speed and quality

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The Comprint circuit board fits easily inside the Epson, with a connecting cable to the serial port The Comprint makes the micro think that it's working with a Commodore printer, and all the special features can be used — graphics and formatting commands can be used without any incompatibility problems

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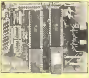
The Epson RX80 costs around £250, and offers the speed and quality common to Epson machines, plus bonuses such as the ability to use 15 inch paper, print out £ signs, use condensed and expanded print, and so on

The first prize-winner will receive the £250 Epson RX80 and the £61 Comprint interface

The five runners-up will receive a Comprint plus a £25 discount voucher against the cost of any Epson printer from Chromasonic of 48 Junction Road, Archway, London N19 Chromasonic's stores in Archway and Muswell Hill offer sales, maintenance, support and training for a wide range of Commodore, Epson and other products, as well as being a mail order source for the Comprint interface

All you have to do to win is to put in order of merit the features of the Comprint/Epson system For instance, if you think that "leaves cartridge port free" is most important, then mark your entry 1,C, and so on through to 6

When you've done that complete the tie breaker in an apt and original manner in 15 words or less, "Comprint and Epson form a winning team because



Put your entry on a POSTCARD and send it to Comprint Contest, Commodore Horizons, 12/13 Little Newport Street London WC2R WC2H 7PP, to arrive by the last working day of May Results will be announced in the July issue Normal competition rules apply ■

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THE WINNERS of the Digital Integration Fighter Pilot contest in the March issue are Steve Wood, Warley, J P George, Ebbw Vale, R Palmer Stafford, P Leeks, Banstead, S Conway, Kilkenny J Eagle, London, G Morris, Sunderland R Sloman, Cardiff, M F C Ward, Hampshire, D Burnand Chelmsford, J P Dixon, Yardley, M A Cooper, Hemel Hempstead, B C Hobbs Warminster, M H R Burgher, Kelso, A G Smith, Banbury, P Meier, Teignmouth, P Wood, Beeston, P Dent, Seaham, W Sinclair, Kirkwall Each will receive a copy of the combat flight simulator Fighter Pilot from Digital Integration

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EPSON MX 100	5 20 (ERC 08)

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Wot! No software for the C16?

C16 owners needn't despair. There's lots of software available if you know what to look for. Start with our complete checklist

HEAVY DISCOUNTING on the retail price of the C16 starter pack has led many people to conclude that the machine isn't doing too well in the micro marketplace But Commodore would have us believe that around 100,000 C16's have been sold, so it would not be true to say that there isn't a large enough user base to justify the production of software by third-party companies

So, to satisfy those C16 owners who haven't been able to find enough software to keep them happy — and to prove that many software companies are rising to the challenge of providing software — here's a checklist, complete at the time of going to press, of all available C16 software In future issues we'll be looking at software for the Plus/4, and hardware for both machines

So what are the best C16 programs on the market so far? Cascade's **ACE** (Air Combat Emulator) must be the best shoot 'em-up. It's not a flight simulator as such — there are no take-off and landing sequences — but otherwise it's every bit as exciting as, say, Digital Integration's **Fighter Pilot** for the 64 Using your altimeter, speed and altitude controls and combat radar, you must home in on enemy aircraft and destroy them with heat seeking missiles Keyboard or joystick control are possible, and there are excellent sound effects and music

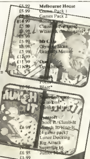
For fans of the "cutesy" style of arcade games, there's Commodore's **Jack Attack** Jack is a harmless creature who must avoid being squashed by hostile balloons, by squashing them first Moving blocks can be used as weapons, but there's a time limit for completing each screen With nine levels of difficulty, Jack Attack (no reference is intended to Jack Tramiel, we assume) may not be the greatest game graphically, but it's maddeningly addictive

For value for money, you can't beat Tynesoft's four-game pack at £14 95 The games, **Climb-It, Shoot-It, Munch-It** and **Hop-It**, and versions of the classics Kong, Invaders, Pac Man and Frogger, and though they're not the most sophisticated programs on the market they should provide hours of fun Along with software packaged with the C16 — **X-Zap, Punchy, Mayhem** and **Picture Builder** — the four pack will be the start of a varied and exciting software collection

There are already some utility packages available too, Tynesoft's **Superfile 16** is an economical and easy to-use database which will have hundreds of uses for hobbyists, club secretaries, collectors and small businesses Up to fifteen fields can be defined for each record, and there are alphabetical and numerical search facilities

Mr Chip's **Graphic Master** is another useful utility allowing you to redefine the C16's character set, scroll, invert and rotate the characters, then save them to tape or disk It's a nice package which will be popular with users who chose the C16 for its advanced graphics facilities

Looking at the list here, you'll see that predictably most of the software so far is in the arcade mould But there are a few adventures and utilities, and it's likely that if Commodore carries on marketing and supporting the C16, a good software base will be built up ■



Company/ Title	Price
Amrog	
Skramble	£6 95
Petch	£6 95
Moon Buggy	£6 95
Star Commander	£6 95
3D Time Trek	£6 95
Minipedes	£6 95
Zodiac	£6 95
Flight Path 737	£6 95
Out on a Limb*	£6 95
Bubble Bus	
Hustler	£6 99
Cave Fighter	£6 99
Cascade	
A C E	£9 99
Craig Comms	
Flight 015	£5 95
Creative Sparks	
Tower of Evil	£5.95
CBL	
Berks	£5.95
Commodore	
Mayhem	£5.99
Harbour Attack	£5.99
Crazy Golf	£5 99
Stellar Wars/Blitz	[illegible]
Jack Attack	£14 99
UXB*	£5 99
Space Sweep/Invaders*	£5 99
Purple Turtles*	£5 99
Exorcist*	£5 99
Fire Ant*	£5 99
Sandcastles/Paramaths*	£5 99
Viduzzles*	£1[illegible] 99
Strange Odyssey*	£1[illegible] 99
Pirate Adventure*	£1[illegible]99
Atomic Mission	£1[illegible] 9[illegible]
Gremlin Graphics	
Zargon Wars	£6 95
Petals of Doom	£6 9[illegible]
Tycoon Tex*	£6 95
Llamasoft	
Psychedelia	£6[illegible]
Mastertronic	
Jackpot	£4 99
Microdeal	
Cuthbert Enters the Tombs of Doom	[illegible]
Cuthbert in Space	£6 95
Williamsburg Adventure	£3 99
Mansion Adventure	£3 99
Arena 3000	£4 99
Melbourne House	
Games Pack 1	£5 95
Games Pack 2	£5 95
Rolle[illegible]	£5 95
Classi[illegible]dventure	£5.95
Wizar[illegible]ncess*	£5 95
Mr Chip	
Olym[illegible] Skier	£5 99
Gra[illegible]ics Mast[illegible]	£5.99
Oce[illegible]	
De[illegible]thlo[illegible]	£7.90
[illegible]k	
Po[illegible]	£6 99
Blaze*	£6 99
S[illegible] Software	
[illegible]laxions*	£6 95
[illegible]onkey Magic*	£6 95
[illegible]ynesoft	
[illegible]hoot It/Climb-It	£14 95
M[illegible]ch It/Hop-It	
(4 game pack)	
Lunar Docking	£6 95
Rig Attack	£6 95
Superfile 16	£9 95
Junior [illegible]	£9 95

[illegible] forthcoming title

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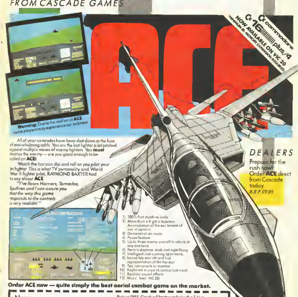

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Answer Back

If you need help with a technical problem write to ANSWER BACK Commodore Horizons
12/13 Little Newport Street London WC2H 7PP

Switch around

I OWN A Vic 20 and use a 16K expansion cartridge I acquired a game needing 3K expansion and although I used a program which was supposed to reconfigure the 16K expansion as 3K, I could not get the game to load Can the 16K pack (Vic 1111) be used as a 3K, or must I buy a new pack?

G Stephens
Leyland
Lancs

THE VIC 1111 RAM pack does not contain the memory area $0400 to $1FFF used by the 3K expander, and so it cannot be accessed by reconfiguring the Vic It is best to buy a switchable RAM pack which could be set to 16K, 8K or 3K by a manual switch.

Pressing problem

I AM A keen Vic 20 user, and would like to enhance my programs by checking to see whether the RESTORE key is being pressed Also, is it possible to check whether STOP on the datasette has been pressed?

A Pearce
Eastville
Bristol

RESTORE along with SHIFT/LOCK are the odd keys out of the Vic's 66 RESTORE causes a non-maskable interrupt (NMI) to occur when pressed, and is not decoded along with the other keys, so it cannot be detected with the GET routine If you can program in machine code, then RESTORE can be detected by diverting the vectors held in $0318 (792) and $0319 (793) to a routine of your own to show that an NMI has occured, before returning to $FEAD to continue with NMI handling Try the following routine, POKE the values 169,65,32,210,255,76,173,255 into locations 828 to 835, then in machine code do SEI, then put $3C into $0318 and 3 into $0319 and finish with CLI Pressing RESTORE will then cause two outputs of "A"

To detect if a cassette key has been pressed, try PEEK(37151) If pressed, the result will be 62, but you will not be able to tell which key has been pressed

Don't interrupt

COULD YOU explain something to me about the use of interrupts?

T Greensteen
Waltham Forest

YOU DON'T mention which computer you own, so let's look at the 64 NMI, RESET and IRQ vectors are stored in the top 6 bytes of the 6510's memory NMI jumps to $FE43, RESET to $FCE2 and IRQ to $FF43 To use NMI interrupts properly, $0318 must be redirected with a correct exit, and the CIA timers must be set properly RESET has no direct vectors apart from the optional cartridge start addresses, IRQ and BRK For further details on interrupts, which are tricky to use, you should look at Raeto West's book *Programming the 64*

Put a bold face on it

I HAVE bought an Epson FX80 to use with Easyscript, but have not been able to get the printer to produce bold face or any of the other special feature typefaces I use the Trippler 2064 interface.

W A Meeuws
Oxford

THE BOLD COMMAND sequence given in the manual actually produces underlining! Use round bracket commands instead to produce bold Square bracket commands produce enlarged text "&" and "%" produce double-strike text, and ,, condensed text Use "-" to underline text.

If you still cannot get the commands to work then try the Printlink interface from Microport (01-935 8385) For the many other readers who have sent in queries about printer interfacing, the Printlink is reasonably priced and seems to work with all printers.

Sprite sight

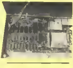
I OWN A 64 and am attempting to convert a program which I wrote for the ZX81 I need to print two sprites, for a sight and an aircraft I have the correct data but when I read the second set it somehow overwrites the first sprite on the screen Could you also tell me how to read a joystick port?

P H P Jones
Iver Heath
Bucks

LOOKING AT the listing you enclosed, I see that your FOR/NEXT loops are putting the two sets of sprite data into the same area of memory, so one overwrites the other Use a different data storage area for the second sprite Each sprite's data takes up 63 bytes, so use POKE 2047,14 to set the pointer to 896 Your second loop should read FOR L=0 TO 62 READ F: POKE 896+L, F NEXT

Here is a useful joystick routine,

```
100 PRINT [CLR]
S=1024 C=55296
110
J1=PEEK(56320) J2=PEEK-
(56321)
120 N1=J1 AND 1 S1=(J1
AND 2)/2 W1=(J1 AND
4)/4 E1=(J1 AND 8)/8
130 N2=J2 AND 1 S2=(J2
AND 2)/2 W2=(J2 AND
4)/4 E2=(J2 AND 8)/8
140 F1=(J1 AND
16)/16 F2=(J2 AND 16)/16
150 IF N1=0 THEN
Y1=Y1-1 IF Y1<0 THEN
Y1=0
160 IF S1=0 THEN
Y1=Y1+1 IF Y1>24 THEN
Y1=24
170 IF Y1=0 THEN
X1=X1. IF X1<0 THEN
X1=0
180 IF E1=0 THEN
X1=X1+1: IF X1>39 THEN
X1=39
190 M1=40*Y1 + X1 POKE
S + M1,42 POKE C + M1,1
200 IF F1=0 THEN PRINT
"[CLR] FIRE!"
210 Lines 210 to 270 repeat
lines 150 to 200 with N2 etc
instead of N1 etc
280 GOTO 110
```



Just a nybble

EVERY SO often I have come across references to Commodore's "highbyte/lowbyte" format Can you explain something about it?

R Brunsma
Peterhead
Aberdeenshire

HIGHBYTE/LOWBYTE is the way the Commodore microprocessor stores memory addresses greater than 255 and less than 65536 You cannot POKE into memory a number greater than 255 and less than 65536 without splitting it in this way, take a number less than 255, and call it X

Y=INT(X/255+ 001) remainder Z=X-Y*256

To store X in memory starting at 4096, POKE 4096,Y POKE 4097,Z To convert back to decimal, X=PEEK(4096)*256+PEEK-(4097)

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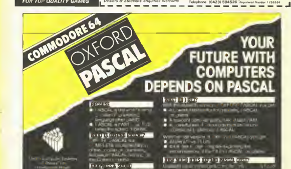
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To enter, all you have to do is look at the cartoons A and B, and spot the differences between the two You don't have to mark them all, just count up the number of differences and put the number on a POSTCARD (or the back of a sealed envelope) Then complete this tie breaker in an apt, amusing and original manner in 15 words or fewer, "I want to shoot the rapids because..." Then tell us whether, in the event of your winning a runner up prize, you would rather have a copy of Shoot the Rapids or Cliff Hanger Add your name and address

So your entry should include

The number of differences in the cartoons
Your tie-breaker sentence
Your choice of runner-up prize
Your name and address

Send your entry to **Shoot the Rapids Contest, Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP**, to arrive by the last working day of May Winners will be announced in the July issue Normal competition rules apply

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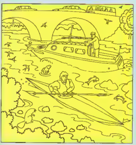

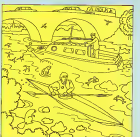

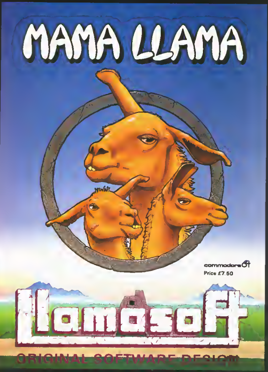
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